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Mount Pleasant Wellness Walkways
DESIGN STUDY REPORT

Patrick Mooney & Don Luymes for the City of Vancouver, 1999

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Mount Pleasant Wellness Walkways
Design Study Report

The attached is the final report of the Mount Pleasant Wellness Walkways Design Study prepared by Patrick Mooney and Don Luymes, both professors in the Landscape Architecture Program at the University of British Columbia. The study was commissioned by the City of Vancouver to identify elements of the Wellness Walkways project in the Mount Pleasant community. The consultants were directed to build on ideas generated through an extensive public consultation process and suggest design ideas to accommodate and encourage use by the full range of people living, working, receiving treatment, volunteering, shopping, or visiting in the neighbourhood. Through consultation with neighbourhood groups, staff and other relevant advisory groups, they developed the comprehensive range of design ideas presented in this report to achieve Wellness Walkways objectives.

These design ideas have been presented to the public for their contributions and vetted through special interest groups, such as the Canadian National Institute for the Blind, the BC Paraplegic Association and the BC Coalition of Persons with Disabilities, for technical review. Many of the design ideas have been further developed by staff in response to internal review and are reflected in Wellness Walkways implementation in the study area.

Although **their study does not necessarily reflect current City policies, practices and procedures**, it is a valuable resource for the City in the ongoing development of the Wellness Walkways project and increasing accessibility in the public realm throughout Vancouver.

Please contact the City of Vancouver's Greenways Program for information on the Mount Pleasant Wellness Walkways project.

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Executive Summary

The Mount Pleasant Wellness Walkways Design Study Report was jointly commissioned by the City of Vancouver Planning and Engineering Departments. The study area is generally bounded on the west by Main Street and on the east by Kingsway, including Robson Park. Its northern and southern boundaries are 12th and 16th Avenues respectively. Within these boundaries are three healthcare facilities (Venture House, Edith Cavell Seniors Complex and Mount St. Joseph's Hospital) whose residents have a range of mobility and health restrictions.

The intent of this study was to identify design solutions which could be applied to public open space or to adjacent private properties (on a voluntary basis) to accommodate and to encourage use by the full range of people living, working and visiting in the area. Several categories of improvements were to be proposed. These included:

i) basic street improvements, such as sidewalks, curbs and street trees;
ii) standard accessibility and safety improvements, such as curb drops, crosswalks and audible traffic signals; and,
iii) unique elements that allow for greater therapeutic use of the streetscape.

The proposed solutions were to fulfill the City's goals for the development of the Wellness Walkways:

- create a variety of circuits within the neighbourhood;
- eliminate physical barriers;
- provide for the physical and psychological comfort of users;
- provide for appropriate levels of wayfinding;
- stimulate the senses of sight, touch, smell and sound;
- incorporate elements of interpretation;
- provide opportunities for social interaction;
- maintain or improve safety;
- increase access to natural elements; and,
- beautify the neighbourhood.

We, as consultants, began by conducting an inventory of the physical condition of the study area. This inventory included street lighting, existing vegetation, heritage resources, slopes and topography, traffic flows, crime statistics and the origins and destinations of pedestrians. Consultation with the public, healthcare facilities and interest groups occurred throughout the study. This process was supported by a review of literature in the subjects of the psychology of users in urban environments, social design theory (including public safety), and principles of universal design.

All of this information was synthesized and used to develop prototypical walkway circuits and a comprehensive range of design ideas to be considered by the City for implementation in the neighbourhood. (Refer to Summary.) These were not intended as a "master plan", but rather as prototypical design ideas that showed how the public realm could be changed incrementally (subject to City policy, maintenance, funding, etc.) to contribute to the health of the community. More specifically, they responded to the special needs of those with challenges posed by illness, disability or age.

Overview of Design Interventions for Consideration by the City

In researching and writing the Mount Pleasant Wellness Walkways Design Study Report, we looked for those design interventions that would have the greatest impact. From our literature review and stakeholder discussions, we were able to identify many that meet the study goals in a number of categories simultaneously. The City should consider assigning higher priority to these design ideas which show wider benefits.

The design interventions, suggested for consideration by the City in this study, are located at the end of relevant sections throughout the report (see Table of Contents). This has been done to link a particular design intervention in the mind of the reader to the rationale for that intervention. In these summary sections, the goal or desired effect is stated before the objective, or measurable action, by which the goal could be achieved.

In order to provide both the client and other readers with a ready reference for the proposed interventions, a summary of all the proposed design ideas in the Mount Pleasant Wellness Walkways Design Study Report follows. These are listed under a variety of categories. Please note that some may relate to more than one category, such as the inter-relationship between street furnishings, plantings and intersection design in creating rest areas along the street.

Figure 1: Sophia Street residents installing pebble mosaics on boulevard, adding visual interest and reflecting community pride.

Summary of Design Ideas in the Wellness Walkways Design Study Report[1]

A. Circuits

A-1 create circuits

Create a series of circuits of varying lengths, and with differing emphases, i.e. provision for heritage interpretation, provision for visually impaired people, and provision for people who have impaired mobility. Overlap the themes of circuits to create a hierarchy of circuits.

A-2 differentiate between circuits

Use differences in paving widths, textures and colours, and in plantings, to define the Wellness Walkways circuits, distinguish between primary and secondary routes and distinguish them from each other and surrounding neighbourhoods.

A-3 encourage mobility

On circuits that are prioritized for people with mobility constraints, follow the gentlest grades and pass through those intersections that provide the easiest crossings for wheelchairs and make all new sidewalks universally accessible.

B. Sidewalks

B-1 wider (1.8 m) sidewalks

New sidewalks should be at least 1.8 metres wide to provide ample room for movement, recognizing that users include those in wheelchairs and walkers.

B-2 sawcut control joints

Control joints in new sidewalks should be sawcut rather than trowelled in order to improve evenness and smoothness for use by wheelchairs and walkers.

B-3 cracked/heaved/settled sections

To provide a smooth sidewalk surface, any cracked, heaved or settled sidewalk paving should be replaced where possible with new sidewalks.

B-4 street tree planting

Ensure adequate root zone preparation and carefully select tree species to reduce sidewalk heaving by tree roots.

B-5 special sidewalk treatments

Unique sidewalk designs should be considered for beautification areas. Consideration should be given to creating a smooth surface on the sidewalk along Main Street with a thin coating (e.g. 10 mm) of coloured asphalt paving over the existing concrete. A smooth travel path in the centre of the sidewalk should be distinguished from textured paving around street trees (to allow water penetration into the soil around the trees) and along the building face (to create a zone for sidewalk stalls, outdoor seating, etc.).

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[1] The design ideas summarized below are all subject to City policy, maintenance, funding, etc.

B-6 tactile strips along sidewalks

Where appropriate, install tactile strips either on both edges of the sidewalk or on the inner edge to aid people using canes to stay on the path.

B-7 recessed tactile surfaces

Make sure that the texture of the tactile strips or other pavement markings result from recesses rather than a raised surface so they are not disruptive to those in wheelchairs.

C. Streets and Intersections

C-1 use curved street alignments

Use curved street alignments and narrowed traffic lanes on busy local streets.

C-2 traffic circles

Install traffic circles where appropriate to discourage non-local traffic cutting through the neighbourhood.

C-3 6-m corner bulges

Provide corner bulges to create a narrower roadway at intersections.

C-4 seating areas

Place rest areas along the busiest pedestrian routes, wherever people tend to congregate and at intersections. Use the wider boulevard strip between the sidewalk and the curb face, created by the corner bulges, for the creation of seating places, thus enhancing the comfort of the public streetscape.

C-5 aligned sidewalks/crosswalks

Replace all diagonal curb ramps with perpendicular curb ramps and align them directly with the sidewalks and crosswalks.

C-6 smooth ramps

Make curb ramps flush with the street at the base. Make the base of these ramps well-drained to avoid puddling. In any future improvements in the study area, strive to make cross slopes 1.5% on sidewalks and 0% on curb ramps. Provide additional curb ramps on the north-east corner of the Kingsway pedestrian-actuated crossing to Robson Park.

C-7 tactile strips at curb ramps

To signal the user's arrival at intersections, consider providing markings, constrasting paving or a tactile strip across the top and/or bottom of curb ramps.

C-8 textured intersection paving

Continue the tactile strip along sidewalk edges or other markings or contrasting paving across intersections to help the visually impaired navigate. At very least, make sure that painted crosswalk line markings are repainted frequently and not allowed to become dim through wear.

C-9 pedestrian/cyclist-actuated traffic signals

Make sure that there are pedestrian/cyclist-actuated traffic signals to connect the Wellness Walkways across busy streets. Consider the use of new technologies,

especially at the Kingsway pedestrian-actuated crosswalk, to ensure that the elderly and those in wheelchairs have sufficient time to cross the road.

D. Street Furnishings

D-1 consistency in street furniture
To assist all, but especially the visually impaired, the design of all street furniture and its placement must be consistent throughout the Wellness Walkways.

D-2 short walks
Reduce walking distances by providing mid-block rest areas. Ideally, provide either a place of interest or a place of rest every 40 - 50 metres.

D-3 universally-accessible street furniture
Design or adapt all street furniture to be universally accessible. Increase access to existing street furniture, such as by adding concrete pads beside benches to allow wheelchair users to sit next to people on the benches.

D-4 wheelchair pads beside benches
At each bench, include a 1-metre square paving pad on at least one end, so that people in wheelchairs can sit alongside the benches and join more easily in conversation, or transfer onto the bench.

D-5 rest areas
Create rest areas which combine simple benches with other amenities to create comfortable, universally-accessible and attractive places. Vary seating arrangements to provide choices and social opportunity.

D-6 street furniture placement
Place all street furniture and rest areas such as benches, drinking fountains and tables off the major circulation and signal its position by a tactile strip or contrasting or textured paving.

D-7 heritage-style furniture
In heritage-themed rest areas, use heritage lighting and street furniture.

D-8 shade structures and shelters
Rest areas should be designed to provide microclimatic protection in the form of shade structures, which may support vines and climbing plants as well, or shelters from the rain. In Tea Swamp Park, provide a shade structure over the existing seating area, to make it a more comfortable place to sit.

D-9 universal drinking fountains
Rest areas should include universally-accessible drinking fountains. Install a universally-accessible drinking fountain at the entrance to Tea Swamp Park.

D-10 accessible tables
In Tea Swamp Park, provide a universally-accessible table on a new paved area and expand the paved area around the chessboard in Robson Park to accommodate wheelchair users.

D-11 universally-accessible bus shelters

Provide universally-accessible bus shelters with clear signage at bus stops serving the Wellness Walkways. Posts should have a distinct cross-sectional shape and reflective coloured bands. Signage at bus stops should be safely at eye level and Braille panels should be used to extend signage messages to visually impaired people. Consider a trial design at the bus stop on Main Street between 13th and 15th Avenues.

D-12 fountains and pools

In the Special Landscape Area at the entrance to Mount St. Joseph's Hospital, install a small fountain to act as a focal point and add liveliness and interest.

E. Trees, Plants and Wildlife

E-1 increase plantings

Retrofit the neighbourhood streets with additional plantings, including voluntary plantings on private lands, new street trees where lacking and additional plantings at Special Landscape Areas, intersections, mid-block and corner rest areas. Decide on location, nature and type of plantings on public and private lands through public consultation and use volunteers in planting them.

E-2 reduce glare

Plant street trees, particularly on circuits prioritized for the elderly and visually impaired, to reduce glare from the sidewalk surface and to provide shade.

E-3 planted boulevards

Use the wider boulevard strip between the sidewalk and the curb face created by the corner bulges for additional plantings to enhance the attractiveness of the public streetscape.

E-4 maintain open sight lines

When retrofitting the neighbourhood streets with additional plantings, ensure that open sight lines are maintained to provide views of traffic and for public safety. Keep plantings in traffic circles low for maximum visibility.

E-5 distinctive landscape character

Design additional plantings so that distinctive landscape character zones are created within the Wellness Walkways circuits.

E-6 special landscape areas

Make the origins and destinations of each circuit's Special Landscape Areas. These include the entrances to care facilities and local parks, as well as destination business or travel corridors. Designs should increase access and provide a variety of seating that promotes socialization and viewing opportunities.

E-7 aromatic plantings

Rest areas and walkways should be designed to provide perennials, flowering shrubs and trees planted for aroma. Provide additional aromatic plantings in Tea Swamp Park, close to where people may sit.

E-8 colour/wildlife plantings

Rest areas should be designed to provide perennials, flowering shrubs and trees planted for colour or to enhance the viewing of birds and butterflies. Provide new vines, shrubs and perennial plantings which attract hummingbirds and butterflies in Tea Swamp Park, close to where people may sit.

E-9 bird feeders, nesting boxes and bat boxes

Rest areas should be designed to provide bat boxes and feeders and nesting boxes for birds. Provide nesting boxes, bat boxes and bird feeders on poles in Tea Swamp Park to attract various birds and bats to the park.

E-10 accessible planting areas and garden plots

Seating areas should have wheelchair accessible, raised planting beds. In the Robson Park community garden, provide raised planting beds as universally-accessible garden plots.

F. Lighting

F-1 increased pedestrian-scaled lighting

Increase sense of safety by upgrading all street lighting where required. Additional lighting should be placed lower than the existing "Cobra" heads on light standards to light the pedestrian portion of the right-of-way.

F-2 upgrade lighting

Use the most natural light spectrum, i.e. the "whitest light", in all new lighting. If this can't be done everywhere, priority should be give to Walkways prioritized for the visually impaired, Special Landscape Areas and wherever people congregate.

F-3 heritage light standards

Reinforce the heritage aspect of Wellness Walkways circuits by providing any additional lighting with heritage light standards or heritage heads on existing light standards.

F-4 rest area pedestrian lighting

Ensure that rest areas are well lit, with heritage style pedestrian-scaled light standards.

F-5 intersection lighting

Provide ample well-directed lighting at intersections.

F-6 street trees

Prune street trees, as necessary, so that street lighting is able to reach the ground.

G. Wayfinding

G-1 pedestrian directional signs

Support wayfinding by installing signposts at key points in the landscape, such as at intersections and rest areas. Give signs bold clear lettering and arrows that point the direction to key destinations and landmarks. Make the lettering black on a white background and place it safely at eye level.

G-2 colour coding

Make different routes and destinations visually distinct by means of colour coding.

G-3 colour-coded tactile strips

Consider reinforcing colour themes with coloured tactile strips along sidewalks.

G-4 colour-coded plantings

Make different routes and destinations visually distinct by means of colour-coded plantings. Further differentiate the circuits by using cool colours on north-south streets and warm colours on east-west streets.

G-3 reflective banding on poles

Distinguish different routes and reinforce colour themes, particularly at intersections, with reflective bands on light standards and other poles.

G-6 distinctive landmarks

Use distinctively designed Special Landscape Areas, intersections, rest areas, and heritage interpretation markers to serve as landmarks.

H. Safety and Security

H-1 low crime circuits

Locate the Wellness Walkways circuits in areas of lowest crime.

H-2 defensible space

Encourage natural surveillance on the street by designing the spaces along the street and in front of apartment buildings that give shade, shelter, amenity and convenience. Physically separate these spaces from the street by using low walls, hedges or plantings. Subdivide these apartment "front yards" into two areas: a semi-public area nearer the street and a semi-private area of amenity and use nearer the building.

H-3 public-private "blurring"

Make the entries of care facilities a merged public/private zone.

H-4 maintain open views

Implement Crime Prevention Through Environmental Design principles throughout the study area and maintain open views to ensure the safety of the user.

I. Heritage and Interpretation

I-1 heritage themes

Give rest areas different and appropriate themes such as heritage. Link significant heritage locations together to create circuits with heritage themes.

I-2 heritage-style street furniture and heritage interpretation

Use heritage-style street furniture and unified heritage interpretive markers to reinforce heritage rest areas, strengthen wayfinding and establish distinctly different circuits and districts in the neighbourhood.

I. Introduction

Background

The idea of creating Wellness Walkways in this area of Mount Pleasant grew from a streetscape beautification proposal made by the owners of Edith Cavell Hospital at 2855 Sophia Street when initiating their site rezoning in 1995. Council supported the concept to improve their block of Sophia Street between 12th and 13th Avenues when their facility redevelops, and directed staff to secure a $75,000 letter of credit for this work and to consult with the neighbourhood on design ideas.

Initially, Greenways and Residential Streets program staff met with residents, property owners and representatives of the other two healthcare facilities in the area (Mount St. Joseph's Hospital and Venture House) to discuss streetscape improvements. It was intended that these improvements would be funded through the Local Initiative (shared-cost) program for some streets in the area. However, through these discussions, a broader concept evolved for streetscape improvements that would be more conducive to therapeutic uses and that could meaningfully contribute to a healthier, more attractive community. This expanded concept combined aspects of the Neighbourhood Greenways and Residential Streets programs with opportunities to access other funding sources.

Subsequent meetings with these groups and the Mount Pleasant Business Improvement Area have given more form to the concept and generated growing support for the project. The City's objective for the Wellness Walkways consultant study was that it should build on the ideas generated by the community and should identify design ideas that the City could consider applying to the public realm. These design ideas were intended to accommodate and encourage use by the full range of people living, working, volunteering, visiting or receiving treatment in the neighbourhood.

The Wellness Walkways may be considered an innovative elaboration of the greenway concept. Its purpose is to make the public realm universally accessible - responding to all users of the neighbourhood while focusing on the special populations who live there. The project, which is being co-ordinated through Greenways and Local Improvements programs, is located within a mixed-tenure neighbourhood in the Mount Pleasant community. The study area is generally bounded on the west by Main Street, and on the east by Kingsway. Its northern and southern boundaries are 12th and 16th Avenues respectively. Within these boundaries are three healthcare facilities (Venture House, Edith Cavell Seniors Complex and Mount St. Joseph's Hospital) whose residents have a range of mobility and health restrictions. The neighbourhood is comprised of a mixture of single-family detached homes, a few townhouses and three-storey walk up apartments, occupied by both owners and tenants (Figure 2).

The Wellness Walkways Report is a pre-design study for a particular type of public realm development - one that serves the public by providing respite and restoration while serving the special populations in the neighbourhood by giving them the same respite along with a "prosthetic" environment that supports their needs. To our knowledge, this is a new concept that has not been attempted previously. The nature of the problem is broad and the design responses need to be holistic.

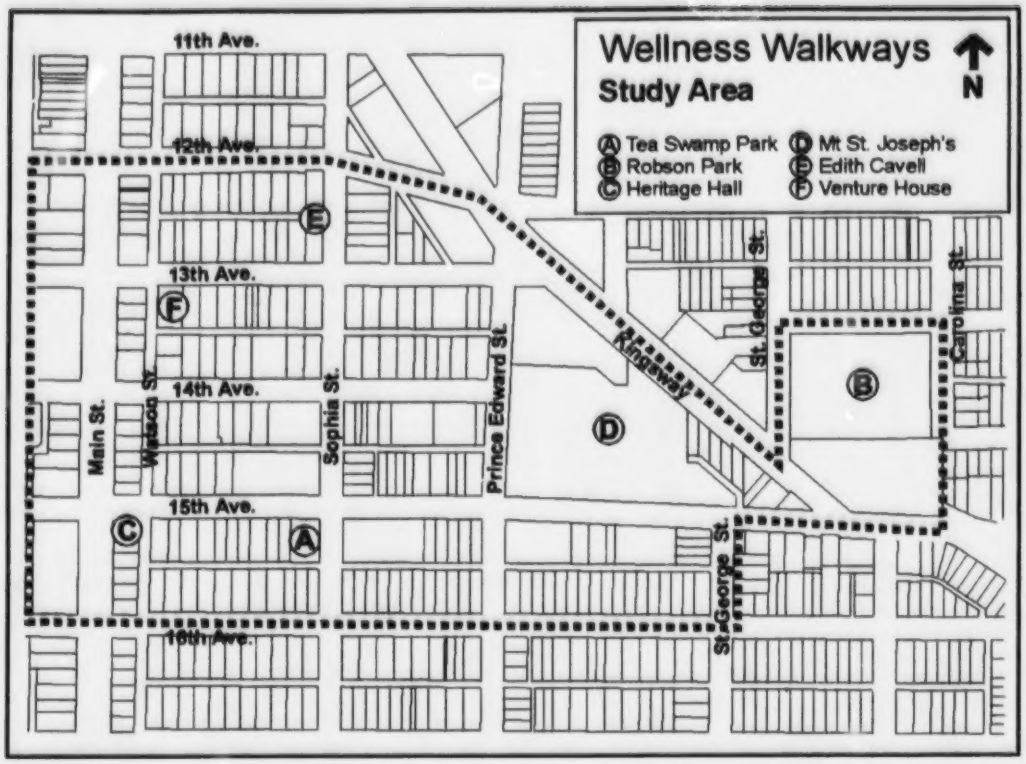

Figure 2: Map of the Wellness Walkways Study Area

Purpose

The main intent of this study was to identify design ideas that could be applied on public open space (or the public realm) and on adjacent private lands to accommodate and encourage use by the full range of people living, working, volunteering and visiting or receiving treatment in the area. As consultants, we were charged with synthesizing the input from these diverse groups and developing understandable graphic design responses to their needs.

These design responses were not intended as a "master plan", but rather as prototypical design ideas. They would show how the public realm could be changed incrementally to contribute to community health in general and, more specifically, to respond to the special needs of those with challenges posed by illness, disability or age. In order to respond to the range of people in the neighbourhood and to existing conditions, it was proposed by the City that there be a variety of circuits of different lengths and different design responses that together make up the Wellness Walkways.

Scope of Work

It was intended that the Wellness Walkways be composed of several layers of improvements. These were:

i) basic street improvements, such as sidewalks, curbs and street trees;

ii) standard accessibility and safety improvements, such as curb ramps, crosswalks and audible traffic signals; and,

iii) unique elements that would allow for greater therapeutic use of the streetscape.

Further, the consultants were asked to develop opportunities for voluntary participation by residents and other interested groups. Ideas for participation by adjacent private properties were anticipated by the City, based on recent trends, such as neighbourhood greenways, "adopted" traffic circles, planted traffic bulges, and other community-initiated improvement and/or maintenance projects.

Those most affected by the study (local residents, property and business owners and hospital therapeutic staff), were consulted by City staff before the consultants were hired. Together with City staff, these groups developed a number of objectives for any design ideas which the consultants would propose. These were to:

- eliminate physical barriers;
- provide for physical and psychological comfort;
- provide for appropriate levels of wayfinding;
- stimulate the senses of sight, touch, smell and sound;
- incorporate elements of interpretation;
- provide opportunities for social interaction;
- maintain or improve safety;
- increase access to natural elements; and,
- beautify the neighbourhood.

As we will see in the following section, these parameters are entirely appropriate to meet the objectives of this study.

II. Theoretical Overview: A Review of Relevant Literature

Researchers frequently lament the fact that practitioners do not employ research in their work and consequently produce unsuitable environments (Kaplan R. et al., 1998, ix). Our approach was to combine the traditional landscape architectural and planning methodology of inventory/analysis and public participation, with a review of literature in environmental design. The literature reviewed consisted of either the most recent research in the areas of the restorative effects of urban landscape or of "classic" works on social aspects of urban design or universal design. It was a challenge to utilize all this research in our design solutions, since we were retrofitting an existing urban neighbourhood, rather than designing a new environment. Nevertheless, the goals of the study, the proposed interventions and the prototypical designs produced for this study evolved directly from the theoretical underpinnings discussed below.

The Restorative Properties of Landscape

We now know that people prefer natural landscapes (Kaplan, R., et al., 1998, ix) and that this preference for nature and certain types of natural scenery is an expression of their innate ability to select safe and desirable habitats (Kaplan, S., 1992). Both scientific research and anecdotal reports strongly support the view that people of all ages and conditions benefit from contact with "natural environments"[2]. Researchers believe that we are genetically programmed to focus on nature and that our easy and automatic cognitive processing of nature lies at the root of the restorative properties of contact with natural environments (Kaplan, S., 1993).

In *The Experience of Nature*, published in 1989, Stephen and Rachel Kaplan examined the restorative response which results from the human fascination with natural environments and postulated their framework concept of the restorative landscape. They showed that simple observation was an important aspect of a person's involvement in nature and concluded "[t]he results of the various studies provide strong support that nearby nature affords a wide range of psychological and physical benefits" (Kaplan and Kaplan, 1989, p 162).

At the present time, a wide range of benefits, related to "nearby nature", have been reported for various segments of society (Kaplan and Talbot, 1983; Ulrich, 1984; Craig, 1994, Smith and Aldous, 1994; Lewis, 1996). These benefits include life, job and neighbourhood satisfaction. Studies have shown that people's preference for landscape increases as the amount of trees or natural elements increases (Kaplan, R., 1993) and that the presence of vegetation, or views of natural scenes correlates strongly with stress reduction (Ulrich et al. 1991; Cooper-Marcus and Barnes, 1995). Given that these benefits accrue most strongly from frequent contact with green environments, it is clear that the value of ready access to urban nature (which is provided and strengthened by projects like the Wellness Walkways) should not be underestimated.

One of the primary ways in which urban dwellers have contact with nature is through the act of gardening. The acts of germinating, propagating, planting and maintaining plants can be seen as a more intense interaction with urban nature than simply looking at or moving

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[2] It is important to understand that "nature" as used here refers not to wilderness or near wilderness but to urban settings which have a visible presence of natural elements such as water and plants.

through the environment. As may be expected, numerous research studies have pointed out the restorative aspect of this interaction (Rice, 1993; Mooney and Milstein, 1994). In 1976, Rachel Kaplan and Charles Lewis conducted a milestone survey of the 30,000 members of the American Horticultural Society in which they asked their subjects to identify the major satisfaction they derived from gardening. More than 60% of the respondents reported a feeling of "peacefulness and tranquillity" in response to this question (Lewis, 1996).

Other researchers and community activists have reported on the ability of group gardening to provide socialization and build community. Matthew Dumont, a community psychiatrist, believes that community is built not when people are forced to live together but when they join together in actions such as building a garden or planting street trees. Such simple acts have powerful links to basic human needs. People are united in a common purpose; they take control and express their ability to alter their surroundings; strangers become allies in a common cause; the neighbourhood becomes - and is also perceived to be - safer (Lewis, 1996, Jacobs 1961).

People receive the benefits of interacting with plants, while plants respond to care by showing evidence of that care: they thrive and produce flowers and fruit. The plant is indifferent to its care giver and rewards all equally. As Aldo Leopold has written "An oak is no respecter of persons" (Leopold, 1949, p 10). Thus, the activity of gardening or horticulture has been shown to be a powerful source of self-esteem, to a wide range of people, including inner city youths and prisoners (Lewis, 1996). The need to be responsible, to make a difference and to interact with one's environment gives people self-esteem, a greater sense of community, and a stronger attachment to the place they care for (Lewis, 1996). These attributes are inherent in the conception of the Wellness Walkways, since community involvement is inherent in its development and success.

Summary of Design Ideas

Goal:

Increase the amount of "near nature" specifically plantings that are viewed from the various circuits of the Wellness Walkways.

Objective:

Retrofit the neighbourhood streets with additional plantings. These include voluntary plantings on private lands, new street tree plantings where these are lacking and additional plantings at Special Landscape Areas, intersections, mid-block and corner rest areas.

Goals:

Increase opportunities for gardening or horticultural activities undertaken collectively by groups or individuals within the Wellness Walkways neighbourhood.

Give the people in the neighbourhood the role of deciding on the scope and type of these activities.

Objectives:

Install plantings on public and private lands using volunteers from the neighbourhood and others.

Decide on location, nature and type of these plantings through a process of public consultation.

Wayfinding in the Landscape

Environmental psychologists speak of the need for compatible environments (Kaplan R., et al., 1998). These settings facilitate what it is that people want to do and need to do. A compatible landscape is one that is arranged so that it is easy to understand and explore. This is the essence of wayfinding. An environment may become more compatible when it is made up of coherent regions (Ibid 51). This is a primary reason for the street plantings that we have proposed for consideration. They are intended to build upon and strengthen existing street character making the neighbourhood into a series of visually distinct coherent regions. Along with other design interventions, these plantings will provide coherence, making the landscape easier to navigate.

Since Kevin Lynch's seminal book "Image of a City" (1960), urban theorists, planners and designers have known the importance of all people understanding where they are located in their environment. Subsequent studies have confirmed the negative impacts of people being lost or confused about their surroundings (Kaplan et al., 1998, 49). Therefore, designers, planners, urban theorists and environmental psychologists promote environments which facilitate wayfinding, which make it easier for people to find their way around. Wayfinding is a primary component of compatible landscapes and is of paramount importance people who are unfamiliar with a place, who have cognitive limitations, or who are visually impaired. Design devices like textured pavement, coloured paving and plantings, as well as special landscape elements that act as local landmarks can facilitate wayfinding. We have included mid-block rest Areas, Special Landscape Areas and heritage interpretation markers that serve as distinctive landmarks (Ibid, 53). As recommended by the researchers, we have distinguished between primary and secondary routes by differences in paving widths, textures and colours, and in plantings (Ibid., 55).

Intersections and Special Landscape Areas act as decision points: points along the route where a user must make the decision whether to continue in a given direction or to change direction in order to reach their destination. We have provided special features at such places to mark their occurrence and rest areas to accommodate those who wish to stop and rest or chat with friends and neighbours.

Summary of Design Ideas

Goal:

Support the concept of the Wellness Walkways by providing wayfinding orientation for every user.

Objectives:

Use designed interventions like textured pavement, coloured paving, new plantings and special landscape features, mid-block rest areas and heritage interpretation to provide landmarks and make the different sections of the Wellness Walkways visually recognizable and distinct.

To assist all, but especially the visually impaired, the design of all street furniture and its placement must be consistent throughout the Wellness Walkways.

Provide special features, plantings and benches at intersections and Special Landscaped Areas.

Public Landscape for People (Urban Social Theory)

Early discussions with residents of the neighbourhood suggested a mandate to beautify the neighbourhood. Our discussions in the subsequent public meetings indicated that planted

traffic circles, new street furniture, street plantings based on existing character and park improvements fulfilled this objective. However, our intention here was to do more than this. The suggested "improvements" were intended to give a visible order and structure to the neighbourhood. As a result, the circuit routes have well-defined beginnings and ends. These are Edith Cavell Seniors Complex, Mount St. Joseph's Hospital and Tea Swamp and Robson Parks. They have special and individual characters created by the combinations of the suggested interventions. These different, well-defined areas not only improve wayfinding but give drama and clarity to the landscape (Cullen, 1961, p 61).

On Main Street, our intention was to visually unify the street, while retaining its lively and eclectic atmosphere and ensuring accessibility along its length. A very powerful unification element is the ground plane on which the buildings sit. The intention of the suggested sidewalk paving is to join the separate elements of the ground plane into a unified element so that it reinforces the sense of this portion of Main Street as a unified place (Figure 3).

Throughout this work, we have introduced "hard" and "soft" landscape details. This attention to detailing is intended to give interest and quality to the urban scene, to provide landmarks for wayfinding but also produce visual incidents which provoke interest and engagement in the viewer as they pass along the street (Ibid).

Figure 3: Main Street perspective drawing, showing proposed sidewalk and awnings.

Designing for Social Activity

Social activity on streets includes such everyday things as greetings, conversations, children playing and communal activities of all kinds. Urban designs can be considered socially successful only if people use the street. In fact, streets become more successful as people use them. There are two reasons for this. We know that the more time people spend outdoors, the more frequently they meet and the more social interaction takes place (Gehl, 1996). We also know that well-designed outdoor spaces that support what people want to do and need to do, indirectly support social interaction. People are attracted to places that are most actively filled with other people (Whyte, 1980 p 19). Sidewalk benches will be most used along the busiest routes and people tend to congregate, talk and socialize right next to the busiest pedestrian traffic lines. Improved design and increased public open space result in increased social interaction in public places. To illustrate this, in Copenhagen the public open space in the downtown core was increased by 300% and improved for public use between 1968 and 1986. The result was a predictable increase of 300% in the number of people sitting and standing in that open space (Gehl, 1996, p 31).

High quality urban environments provide ample room for movement. In the Copenhagen experience, where sidewalks were widened, not only did the number of pedestrians increase but also the number of baby carriages (Gehl, 1996 p 136). Good surfaces for walking increase pedestrian use and poor surfaces deter use. Therefore, we have suggested that new sidewalks be wider, and that control joints (to control cracking of the sidewalk) be sawcut rather than trowelled, in order to improve evenness and smoothness for use by wheelchairs and walkers.

While surfaces are important, walking distances are also critical to discretionary (that is, non-required, pleasure-oriented) public use. People prefer distances for walking of about 40 - 50 metres between places of interest or places to rest. For elderly and infirm people, we may expect these distances to be shorter. Therefore we need to supply frequent rest areas if we expect elderly people to use the neighbourhood for walking. People will avoid long unrelieved pedestrian journeys unless they are required (to walk to work, to a bus stop, etc.). But a journey which is broken down into manageable segments will be used by people for pleasure as well as by those who are compelled to walk (Cullen, 1961; Gehl, 1996).

People prefer sitting areas "at the edge". These are places of overlook at the edge of a circulation route or a space (Gehl, 1996; Whyte, 1980). These sitting areas need to have a number of characteristics. As well as being at the edge of open spaces, the most popular places to sit protect the sitter's back, give unobstructed views and provide protection from the elements (Figure 4).

Figure 4: People prefer to sit at the edges of spaces, with their backs protected.

People, especially elderly people, seek sun traps. These are places oriented to the sun and protected from winds and drafts. Sun traps will be preferred whenever the weather is cool but on warmer days, sitting and walking spaces should be protected from the sun. William Whyte's research found that the best-liked seating spaces provided a good view of the passing humanity from under the comfort of a tree. (Whyte, 1980, 46). Thus, we need to provide choices of both social opportunity and microclimatic comfort in the design of sitting spaces (Whyte, 1980). Jan Gehl concurs with this view but emphasizes the need for benches to be comfortable (especially for elderly users), to have a distinct local quality, and to offer intimacy and security as well as microclimatic comfort (Gehl, 1996, 159). In addition to such benches, seats grouped around a table or sitting areas that look onto activity or "landscape conversation pieces" promote socialization (Gehl, 1996).

In order for people to feel - and *be* - secure, lighting needs to be ample and well directed. The best light is warm and friendly, with a clarity that does not affect "true" colour perception (Ibid). This is supported by people's reaction to the trial of new metal halide lights at Ontario and 12th in Vancouver which was generally positive. These lights have a clear quality of light that allows people to recognize one another from a greater distance, a key ingredient in making streets feel safer.

Defensible Space: Safer Urban Environments

"Defensible space is a model for residential environments which inhibits crime by creating the physical expression of a social fabric that defends itself" (Hall, 1996, p 3). According to this theory of urban design, real and symbolic barriers create strongly defined "territories" and opportunities for surveillance - bringing an area under the control of its residents. It is our intention that proposed street plantings and other landscape elements be designed in such a way that the spaces created, especially in front of apartment buildings, in the study area, become defensible spaces (City of Toronto, 1993). This benefit is in addition to the increase in socialization as the community installs and maintains plantings, and in addition to the therapeutic benefits resulting from an increase in urban nature. Our intention is to define blocks and areas as distinct territories, under control of their residents (Newman, 1980; Cisneros, 1995).

Having more people on the street promotes natural surveillance. Resting places in front of dwellings and other opportunities for looking out at public spaces reduce crime and vandalism in an area (Jacobs, 1961). Physical subdivisions, which are clearly defined and related to access paths, amenities and entries encourage surveillance and serve as significant deterrents to crime (Hall, 1966, p 53; Newman, 1972). To encourage this natural surveillance on the street, suggested redesigns of public and private spaces need to provide shade, shelter, amenity and convenience. These attributes will cause people to use and take possession of these areas of landscape (Cullen, 1961, p 23).

People also need protection from vehicular traffic. We know that pedestrian use and social interaction are reduced as traffic volumes increase (Appleyard, 1981). It is necessary not only to actually be safe from traffic but also to feel safe from traffic (Gehl, 1996, 175). This is especially true for those in wheelchairs, the visually impaired or infirm. Thus, our design ideas are intended to improve the safety of traffic crossings, reduce confusion and slow traffic as a response to this universal need.

Summary of Design Ideas

Goal:

Give people greater psychological and real safety in the neighbourhood.

Objective:

To increase public safety, design all Special Landscaped Areas and all new defensible landscaped areas in front of apartment buildings according to principles of CPTED (Crime Prevention through Environmental Design).

Goal:

Street plantings and other landscape renovations should be designed so that the spaces created, especially in front of apartment buildings, become defensible spaces.

Objectives:

Encourage natural surveillance on the street by designing the spaces along the street and in front of apartment buildings that give shade, shelter, amenity and convenience.

Physically separate these spaces from the street by using low walls, hedges or plantings.

Subdivide these apartment "front yards" into two areas: a semi-public area nearer the street and a semi-private area of amenity and use nearer the building.

Universal Design

"The goal of universal design is to create a product, place, or service that can be used by the widest possible range of individuals. ... It is intended to be inclusive and not exclusive" (Covington & Hannah, 1996, p 3). In this case, we are designing for a diverse public including the aging, people using wheelchairs and walkers and people with limited vision. As society ages, universal design becomes increasingly important as a design strategy that has direct relevance for everyone (Ibid). Our attempt to provide universal access and amenity to the urban landscape in this area of Vancouver might be considered a prototype for the common urban landscape of the not too distant future.

Regardless of their physical condition, people respond to the restorative aspects of urban nature. In fact, research indicates that those people who are the most degenerated psychologically have the most to gain from such exposure (Mooney and Milstein, 1994). However, people with disabilities cannot access the urban environment unless obstacles to wayfinding and fear of traffic have been removed.

Promoting wayfinding and reducing fear of traffic are our first strategies for universal design of the Wellness Walkways. We have suggested tactile and audio information for visually impaired users, wider smoother pavements and modified curb ramps for people in wheelchairs, and glare reduction and safer street crossings for elderly people. These promote wayfinding and reduce fear of traffic for the elderly, visually impaired and those in wheelchairs. Yet, the design is universal because the controlled crossings and proposed curb ramps will be universally preferred.

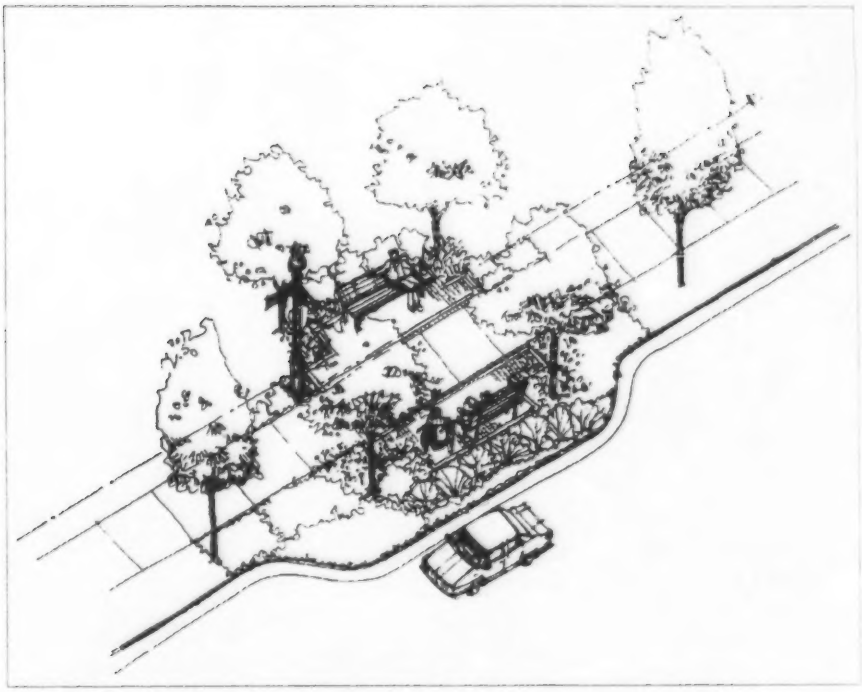


Figure 5: A restorative spot - a proposed mid-block rest area.

Children, as well as people with visual disabilities and the elderly, will benefit from microclimatic amelioration and glare reduction. Parents with strollers and young children, as well as those in wheelchairs, will feel safer using the suggested new curb ramps and narrower intersections. The mid-block seating will be a boon to people who are infirm or have disabilities (or who have groceries to carry) but will also provide defensible space and social opportunities for every segment of the population. This is what is intended by using the concept of universal design.

A second strategy has to do with barrier free design to provide access to the urban environment. This is the level at which the designer worries that the control joints in the sidewalk cause discomfort to someone in a wheelchair or that the drinking fountain or bus shelter only serves sighted and able-bodied people. We have suggested adapting street furniture to be universally useable and providing free access to the public realm for all segments of society.

In summary, the proposed modifications to the streetscape and adjacent urban landscape are based on a review of current and classic literature and on meetings with care givers and people with disabilities in the neighbourhood (Wilkoff & Abed, 1994; Robinette, 1985).

Summary of Design Ideas

Goal:

Provide universal access and amenity in the urban landscape. To do this, support the needs of different groups of people, without excluding any one group.

Objectives:

Give intersections attractive plantings and benches for resting.

Keep plantings in traffic circles low for maximum visibility.

Major circuits of the Wellness Walkways should be located on very gentle slopes. Create a series of circuits of varying lengths, and with differing emphases. Provide tactile and audio information for visually impaired users, wider smoother pavements and modified curb ramps for people in wheelchairs, glare reduction and safer street crossings for elderly people. Design or adapt all street furniture to be universally accessible. Provide universally-accessible bus shelters with clear signage at bus stops serving the Wellness Walkways. Posts should have a distinct cross-sectional shape and reflective coloured bands. Signage at bus stops should be at eye level and Braille panels should be used to extend signage messages to visually impaired people. Consider a trial design at the bus stop on Main Street between 13th and 15th Avenues.

III. Study Methodology

Inventory and Analysis

The study began with a survey of existing site conditions. These included sidewalk and lighting conditions, vegetation, heritage resources, slopes and topography. The inventory was intended to provide insight into the physical opportunities and constraints presented by the study area that would affect the design of Wellness Walkways circuits.

Sidewalk Conditions

After establishing a 1:1000 scale base map which included all roads, sidewalks, property lines and building footprints, we documented existing sidewalk conditions throughout the neighbourhood. This included mapping all areas of new paving, intersections that lacked sidewalk ramps, areas of "corner bulges" or curb extensions and areas where sidewalks were in poor condition.

We found that sidewalks were in generally good condition in the area but that sidewalks were of less than ideal width in all but the new paving on the west side of Sophia, for the two blocks north of 16th Avenue. Very few intersections in the study area lack curb ramps but we noted that the curb ramps were mostly diagonal to the flow of traffic.

Our own site observation led us to believe that these diagonal ramps (although they conform to City standards) are unsafe, since they can cause people in wheelchairs to roll into the path of traffic. This was later supported in interviews with staff of the B.C. Paraplegic Association.

Figure 6: Resting bench at a sidewalk corner with corner bulges.

Corner bulges at intersections narrow the roadway, making these intersections safer to cross for slow-moving people. For the most part, they are planted attractively and rest benches have been established in some locations (Figure 6).

Lighting

This inventory revealed standard street lights, smaller pedestrian-oriented heritage poles and combination lighting standards with heritage attachments. We noted two areas of poor light levels. These were in areas where high quality lighting should be considered a high priority - the streets adjacent to Edith Cavell Seniors Complex and near the entrance to Mount St. Joseph's Hospital. Our inventory also located the position of "Cobra" and "Heritage" type poles as well as "Combination" poles (those with both vehicular and pedestrian-oriented lights). This map was important in determining areas where additional lighting was required.

Existing Vegetation

This inventory included a documentation of major plantings on both public (City) lands and private lands. It revealed a lack of consistent street tree plantings on 13th Avenue, 14th Avenue and Sophia Street, with uniform street tree treatments on 15th Avenue and 16th Avenue. The same study, supplemented with on-site observation, revealed that some of the streets had strong visual characters that could be used to support many aspects of the Wellness Walkways. For example, 14th Avenue had a range of mature conifers on private land, and most of the flowering shrubs along the street were pink Rhododendrons. Sophia Street lacked street trees but had heritage residences and many shrubs in the blue-purple colour range. On 15th Avenue there was a strong and uniform street tree planting of Sweet Gum (*Liquidambar styraciflua*) trees, as well as winter-interest plantings of English Holly and other broad-leaved evergreens.

Heritage Resources

The study area is rich in cultural heritage. This fact has already been recognized in the Mount Pleasant Walkway on 15th Avenue that cuts through the study area. This walkway consists chiefly of curb and lighting enhancements with some additional benches and plantings and a single heritage marker citing the former McGeer Diary site at 15th Avenue and St. George Street. Other heritage resources in the area include the Tea Swamp Park and the historic course of Brewery Creek. The Tea Swamp Park was named for the Labrador Tea (*Ledum groenlandicum*) - a native bog plant that grew there in abundance. From the swamp, Brewery Creek flowed north towards False Creek. The stream provided water for a brewery and later a tannery at what is now 12th Avenue and Main Street. Heritage documents assembled by the City of Vancouver allowed us to plot the location of these resources. Other heritage resources in the area include the former Vancouver Street Car barns, Heritage Hall at Main and 15th Avenue, and some early Vancouver homes.

Slopes and Topography

All streets within the study area were measured and classified. Greater than 6% slopes were considered steep, especially as routes for wheelchairs. 5 - 6% slopes were considered moderate, 2 - 4% slopes gentle and 1 - 2% slopes were classified as very gentle. Both 12th and 16th Avenues had steep slopes that precluded selection for any of the Wellness Walkways circuits. 15th and 14th Avenues had very gentle slopes that suggested they might become elements of major circuits. Sophia, Prince Edward, Watson and Main Streets had

both relatively gentle and somewhat steep sections. However, these streets were relatively gently sloping between 14th and 15th Avenues.

Traffic Flows

City Engineering supplied detailed traffic volumes for Sophia Street and some of the east-west streets. The volumes were not considered sufficient to warrant excessive traffic calming measures. On Sophia Street - which has the largest traffic volumes in the area - one traffic circle for traffic calming is already in place. During the course of the study, new sidewalks were installed on the west side of Sophia Street. A curved street alignment and narrowed traffic lanes were recently built on Sophia Street between 13th and 15th Avenues. The other streets in the study area that had high traffic volumes were Kingsway, 12th and 16th Avenues. This information resulted in a very limited proportion of the Wellness Walkways being located on Kingsway. 12th and 16th Avenues were eliminated from the Wellness Walkways for reasons of grades, as well as their traffic volumes.

Crime Statistics

The City furnished crime statistics for the study area. These show the locations and incidence of all types of crime. In general it may be said that crime is highest along 12th Avenue and along Main Street and decreases as one travels south and east into the heart of the neighbourhood. There is one crime location at the intersection of Prince Edward and 15th Avenue, near the entry to Mount St. Joseph's Hospital. Interviews with hospital staff and those who lived in the area revealed that they were most concerned with break-ins to autos. This is a big problem in the area and is considered to be a result of drug addicts stealing to support their addiction. City staff tended to feel that property crime in the study area was not severe, although this opinion was not shared by at least some of the residents who attended the public meetings.

In response to these crime issues, we have promoted ideas of defensible space design in the study area and improved lighting in those few areas which need improvement. We have not suggested 13th Avenue as an integral link in the Wellness Walkways circuits, even though Edith Cavell Seniors Complex is at the corner of 13th Avenue and Sophia Street. This decision was due in part to somewhat higher crime levels on 13th than on 14th or 15th Avenues.

Origins and Destinations

It is self-evident that a pedestrian circulation route must go from somewhere to somewhere else. A path needs an origin and a destination. Site inventory and interviews were used to formulate the origins and destinations of the circuits that make up the Wellness Walkways. We found that key points of origin were the institutions in the area - Mount Saint Joseph's Hospital, Edith Cavell Seniors Complex and Venture House. Residents from all these institutions travel to various destinations in the study area. Perhaps the key destination in the area is Main Street from 13th to 15th Avenues. Here residents in the study area go to church, have a coffee at a sidewalk patio, dine out, catch the bus downtown, shop forgroceries, bank and visit the doctor. A second key destination is Tea Swamp Park (Figure 7).

Figure 7: Tea Swamp Park, a popular neighbourhood destination.

This tiny neighbourhood park is the only park within the study area and is a destination for outings from all three institutions, as well as a popular children's playground. A final destination is Robson Park, a larger park across Kingsway. The site inventory told us that this could be an ideal destination for the neighbourhood and institutional residents with a few minor modifications. Improved access to Robson Park would provide opportunities such as wheelchair accessible gardening which are not available elsewhere in the neighbourhood, and would reduce pressure on the tiny and well-used Tea Swamp Park. Our interviews quickly revealed that the park was underutilized because the pedestrian-controlled signal on Kingsway opposite the park was timed too quickly to allow the elderly and those in wheelchairs to cross before the signal changed. City Engineering has already adjusted the signal to meet the needs of residents. We suggest new technologies be considered to extend the signal when the crossing is in use.

Stakeholder and Public Consultation

The City had conducted a series of public meetings with residents in the neighbourhood, in the year prior to hiring the consultants. These meetings produced the terms of reference and guidelines for the consultants. Our subsequent investigation into the needs of the residents supported the original program for the study area. We began with two small public meetings attended by the therapeutic staff from Mount St. Joseph's Hospital, the owner/developer of Edith Cavell Seniors Complex, senior staff from Venture House and members and the pastor of the local church. At the first meeting, we shared the objectives of the study and the inventory conducted to date. This was followed two weeks later with a second meeting at which we reported our progress in addressing the issues that were raised.

Among the important issues identified at these early meetings were perceptions of safety in the neighbourhood; the importance of Tea Swamp Park and Main Street as destinations; the jarring effect of the trowelled sidewalk control joints on people who use wheelchairs; the difficulty in crossing Kingsway to Robson Park; and proposed improvements in sidewalk width and curb cuts. This group also told us that they would like to see a drinking fountain,

a picnic table that could be used by people in wheelchairs, scented plantings and more bird life at Tea Swamp Park.

This initial consultation was followed by two public meetings. Like earlier public meetings, these were held in the basement of Bethlehem Lutheran Church opposite Tea Swamp Park. At the initial meeting, some residents voiced concern as to the cost of the proposed improvements and stated that they didn't want to pay for the improvements through higher taxes. One family, living next to the Tea Swamp Park, expressed disagreement with any improvements in the park that might attract more users. However, other comments were favourable. At a second meeting two weeks later the response was much more positive, with the majority of residents clearly in support of the proposed plans. The issue of cost was defused, in part by a drawing that showed how a mid-block rest area could be funded by various corporate donors and City infrastructure programs as a "kit of parts".

Finally, a presentation of our proposals was made by the consultants and the City Greenways Planner to the B.C. Paraplegic Association (BCPA). The association staff, most of whom use wheelchairs, were quite supportive of the work already done, and made a number of suggestions for improvements in the detailed design. They advised us that curb ramps need to be flush with the street, without the common 1 mm bump at the base of the ramp. Also, the base of these ramps must be well drained to avoid the puddles that so often form in Vancouver's rainy climate. They advised us that cross slopes on sidewalks (and particularly on curb ramps) must be kept to a minimum. The current City maximum standard for cross slopes on sidewalks is 3%; we suggest that this be reduced, at least in any future improvements in the study area, to 1.5% on sidewalks and to 0% on curb ramps.

Members of the BCPA also suggested that the rough-textured "tactile strips" we have proposed across the top of curb ramps (as a signal to visually impaired pedestrians) must be carefully detailed. These strips would be more acceptable to wheelchair users if their texture was caused by the use of depressions (such as those created by beveled brick) rather than by the raised dimples which are commonly found.

BCPA members also supported the use of sawcut rather than trowelled control joints in concrete paving and supported the addition of wheelchair pads at the ends of all benches. They agreed with us that diagonal curb ramps "drop people into the flow of traffic" and should be avoided (Figures 8, 9 and 10).

Figure 8: A diagonal curb ramp, the current City standard.

Figure 9: Perpendicular curb ramps.

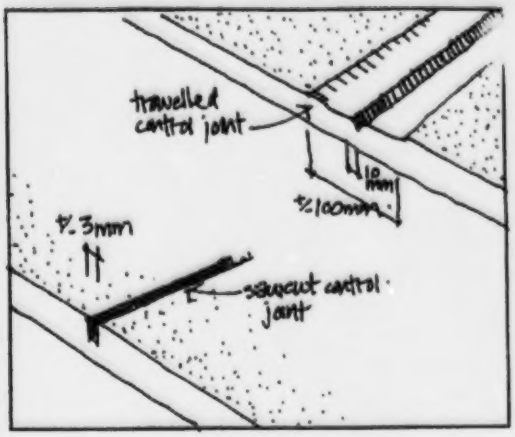


Figure 10: Sawcut sidewalk joints (preferred).

Results of Analysis

Opportunities and Constraints

The inventory of the site resulted in the recognition of a number of opportunities and constraints that could influence the design of the Wellness Walkways. We saw opportunities in the character of the site itself. For example, 14th Avenue has a strong landscape character created by the presence of many mature ornamental conifers. Our suggestion for plantings on private land is seen as building on that character, rather than superimposing a new character on the street by using a typical street tree planting. Likewise, Sophia Street has minimal planting and is being currently redeveloped within its right-of-way. Again, colour analysis of the existing vegetation led to the idea of strengthening the visual image and memory of the street by adding to what was already there. Since much of the planting, both existing and proposed, is on private lands, its continued maintenance cannot be guaranteed under current by-laws. While this fact must be recognized, and thus limits the power of the planting suggestions, the consultants feel that plantings done by the community, once in place, stand a good chance of being maintained for a protracted period of time.

The institutional facilities in the neighbourhood as origins for peoples' journeys and the attractiveness of Tea Swamp Park as a destination influenced the proposed locations for walkway circuits in the study area. Further exploration then led to the idea of expanding the boundaries of the study area to include Robson Park as a destination, to better meet the objectives of the study. Recognition of the importance of the institutions such as Edith Cavell Seniors Complex and Mount St. Joseph's Hospital as origins and destinations led to the development of design ideas for Special Landscaped Areas at the entrances of these facilities. When theories of social design were applied, the necessity for smaller landscaped mid-block rest areas to entice people to use the Wellness Walkways and promote social interaction became apparent.

The rich heritage in the study area allowed for an overlay of points where heritage interpretation could be located. We felt that this would help both residents and visitors to better understand and make connections to the neighbourhood.

The major constraint to design within the study area was that the infrastructure of streets and sidewalks is already in place, and the dimensions of the public space available to us (parks and road rights-of-way) were already set. This meant that single strong interventions and changes to the landscape were not possible, even when they might be desirable. In response, we developed an approach to the project that we called "landscape pointillism." Just as a pointillist painter builds an overall image from many small dots of colour, the constraints of the site meant that we had to overlay many small landscape interventions in order to build up a consistent and readable image and function for the Wellness Walkways.

Other constraints that we identified included pedestrian traffic signals that changed too quickly, a few small areas where the sidewalks needed replacement or where street lighting needed upgrading. Many of these constraints are relatively easy to overcome and may fall within the ongoing maintenance and operations budget of the City.

Summary of Design Ideas

Goals:

Design the circuits of the Wellness Walkways so that the neighbourhood is easy to understand and explore. It should be orderly and divided into clearly recognizable areas for all.

Strengthen the visual image and memory of the street by adding to what is already there.

The street plantings and other design interventions should build upon existing street character to differentiate the different routes of the Wellness Walkways.

Objectives:

Make different routes and destinations visually distinct by means of colour-coded plantings.

Further differentiate the circuits by using cool colours on north-south streets and warm colours on east-west streets.

Distinguish different routes and reinforce colour themes, particularly at intersections, with reflective bands on light standards and other poles.

Design additional plantings so that distinctive landscape character zones are created within the Wellness Walkways circuits.

Goal:

Give all circuits of the Wellness Walkways an origin and a destination, which are small nodes of high use.

Objectives:

Make the entries of care facilities a merged public/private zone.

Design these areas using CPTED principles for safety, giving them defensible space qualities.

Provide lighting, seating and a recognizable character which supports the rest of the Wellness Walkways.

Make the origins and destinations of each circuit's Special Landscape Areas. These include the entrances to care facilities and local parks, as well as destination business or travel corridors.

Goal:

Design the Wellness Walkways so that people will be encouraged to use them.

Objectives:

Reduce walking distances by providing mid-block rest areas.

Ideally, provide either a place of interest or a place of rest every 40 - 50 metres.

Control joints in new sidewalks should be sawcut rather than trowelled in order to improve evenness and smoothness for use by wheelchairs and walkers.
Increase sense of safety by upgrading all street lighting where required.
Use the most natural light spectrum, i.e. the "whitest light", in all new lighting. If this can't be done everywhere, priority should be give to Walkways prioritized for the visually impaired, Special Landscape Areas and wherever people congregate.
Prune street trees, as necessary, so that street lighting is able to reach the ground.

Program

Once we had defined both the problem and the opportunities and constraints contained within the site, we developed a program or conceptual range of interventions with which to address the issues identified.

Since we were asked to create a number of circuits - some of which were more important than others - and since the potential users included a population of seniors who are aging in place, we had to differentiate each of the circuits while also creating an overall identity for the Wellness Walkways. The diverse and even divergent needs of the special populations (visually and physically challenged people, elderly people as well as staff and visitors to the healthcare facilities, tenants and homeowners) led to the conclusion that there should be a diversity of walkway circuits. Each of these circuits also needed a variety of landscape elements (lighting, heritage interpretation, resting benches, coloured and scented plantings etc.) to create the strong, compatible, universal and therapeutic landscapes that would meet the users' needs. Our intention was that the different circuits should be visually distinct enough that they will be identifiable to the casual user.

Our solution was to create a series of circuits of varying lengths, and with somewhat differing emphases. Each of these circuits would appeal or cater to different groups of people, without excluding or precluding any one group. Hence, the entire Wellness Walkways network was intended to be universally accessible, therapeutic, safe and attractive, but individual segments and circuits of the network would be "slanted" towards a particular group of people. Taken together, each of the small landscape interventions (the "pointillist" marks we mentioned earlier) contributed to the creation of a whole neighbourhood that was redesigned as a healthier, more attractive and accessible place.

Summary of Design Ideas

Goal:

Given the diverse and divergent needs of the special populations in the neighbourhood, provide a diversity of walkway circuits. These different areas of the neighbourhood should have well defined and individual characters created by the combination of all the new interventions.

Objectives:

Design the different circuits to vary in their levels of complexity and development.
Give different parts of the network special emphases: i.e. provision for heritage interpretation, provision for visually impaired people, and provision for people who have impaired mobility.
Distinguish between primary and secondary routes by differences in paving widths, textures and colours, and in planting.

Use textured pavement, coloured paving and plantings, to define the Wellness Walkways circuits, and distinguish them from each other and surrounding neighbourhoods.

IV. Strategies and Interventions

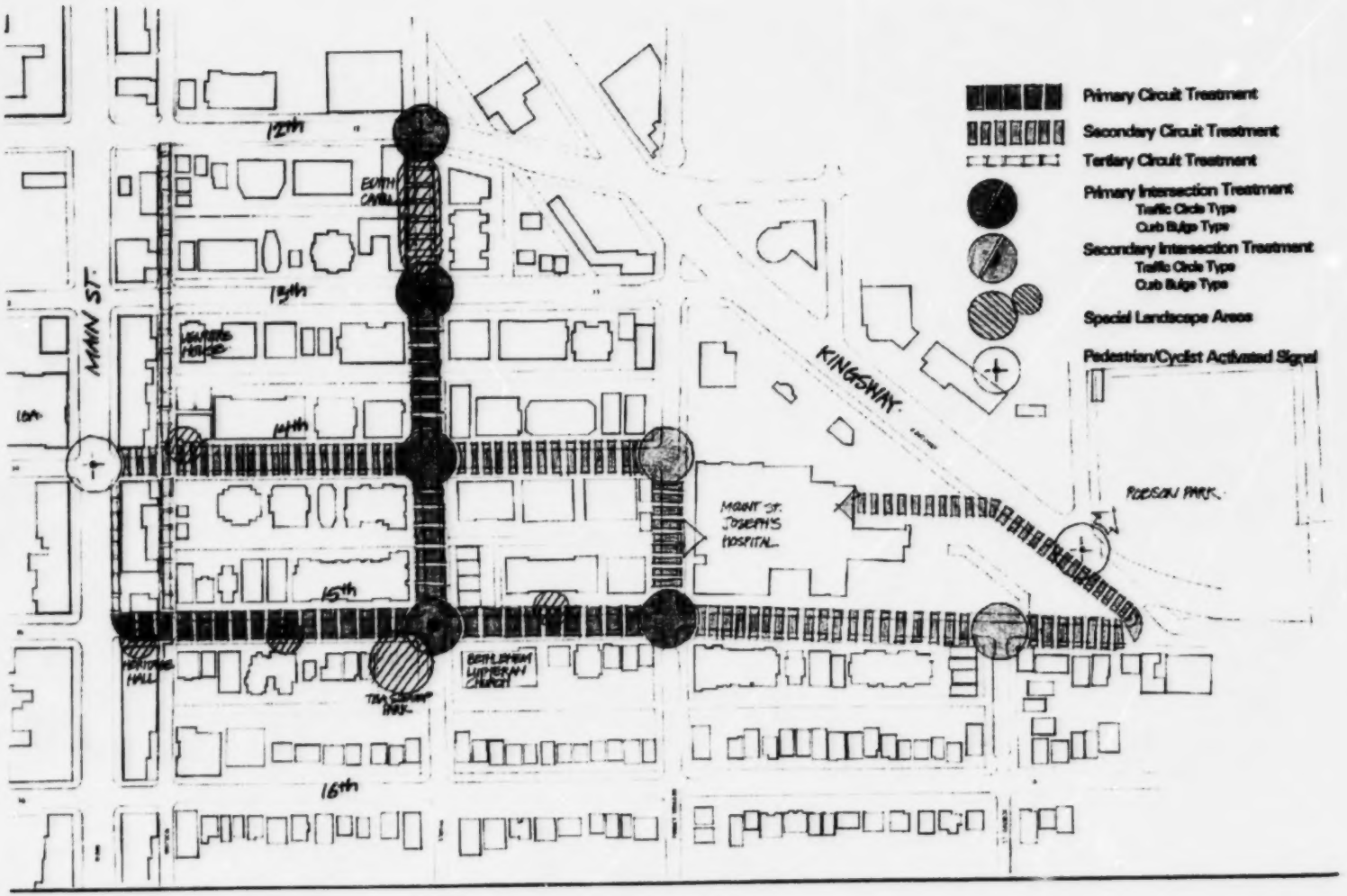
Options for Wellness Walkways Circuits

Once we had identified the program for the Walkways and had absorbed the results of our site analysis, we were able to pose a series of alternative routes, or circuits, for the Wellness Walkways. These alternatives are shown as Options A, B and C (Figures 11, 12 and 13). These options can be distinguished from one another on the basis of their relative degree of complexity, rather than on differences in route locations. Our analysis of the likely origins for most of the potential users of the Wellness Walkways circuits, of the preferred destinations of these users, and of the site conditions, led to the conclusion that Sophia Street was the most important north-south connection, while 14th and 15th Avenues were the most logical east-west connections upon which to base the walkway circuits. Hence, it made sense to distinguish between alternative approaches in terms of their level of complexity and level of development.

Option A (Figure 11) is the simplest scheme, using 15th Avenue as the primary enhanced east-west route, with other streets having fewer enhancements. Option B (Figure 12) is somewhat more developed, with street enhancements forming a loop along 14th and 15th Avenues, and with greater development of connections around the hospital and towards Robson Park. Option C (Figure 13) is the most highly developed and complex scheme, with an emphasis on creating several loops through the neighbourhood, including significant enhancements on 13th Avenue and Main Street and a route through the hospital property to improve universal access to Kingsway from within the heart of the neighbourhood.

Option C is our preferred option, since it allows the greatest diversity of circuits, it takes advantage of possible improvements to 13th Avenue and it addresses the problem of the isolation of the neighbourhood from the shops and parks along Kingsway. This scheme would go the furthest toward creating a strong identity for the neighbourhood and for the Wellness Walkways concept.

Within these locational options are embedded a series of "overlays" - or themes - that animate and create identity for each section of the circuits. These overlays include a strategy for "wayfinding" and a strategy for addressing particular needs and potentials within the circuits. These overlays will be discussed in the sections that follow.



Mount Pleasant Wellness Walkways

Figure 11: Wellness Walk Circuits - Option A

Figure 11: Wellness Walk Circuits - Option A

Figure 12: Wellness Walk Circuits - Option B

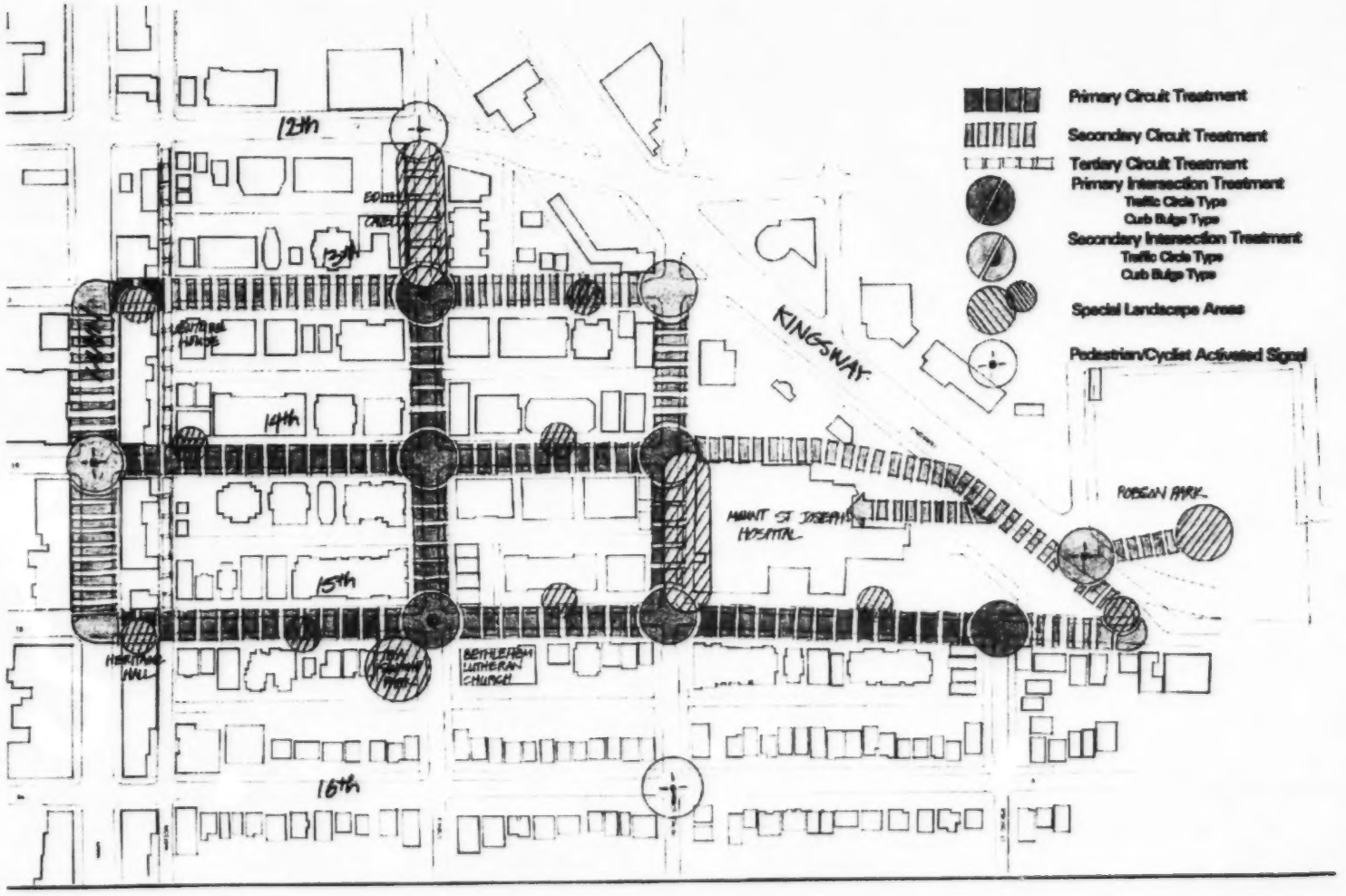


Figure 13: Wellness Walk Circuits - Option C (preferred)

Strategies for Wayfinding

One of the difficulties that people often face as they age is the reduced ability to find their way around in their environment. Mild dementia and the early stages of diseases such as Alzheimer's reduce the ability to make sense of one's environment and result in effectively reduced mobility - even for those whose physical abilities are not impaired. However, the urban environment can be designed in such a way that cues (or clues) are given, so that it is easier to find one's way around, easier to find the way home or to remember the way to a given destination. These cues are known as "wayfinding devices", and our design ideas for the Wellness Walkways pay special attention to these devices.

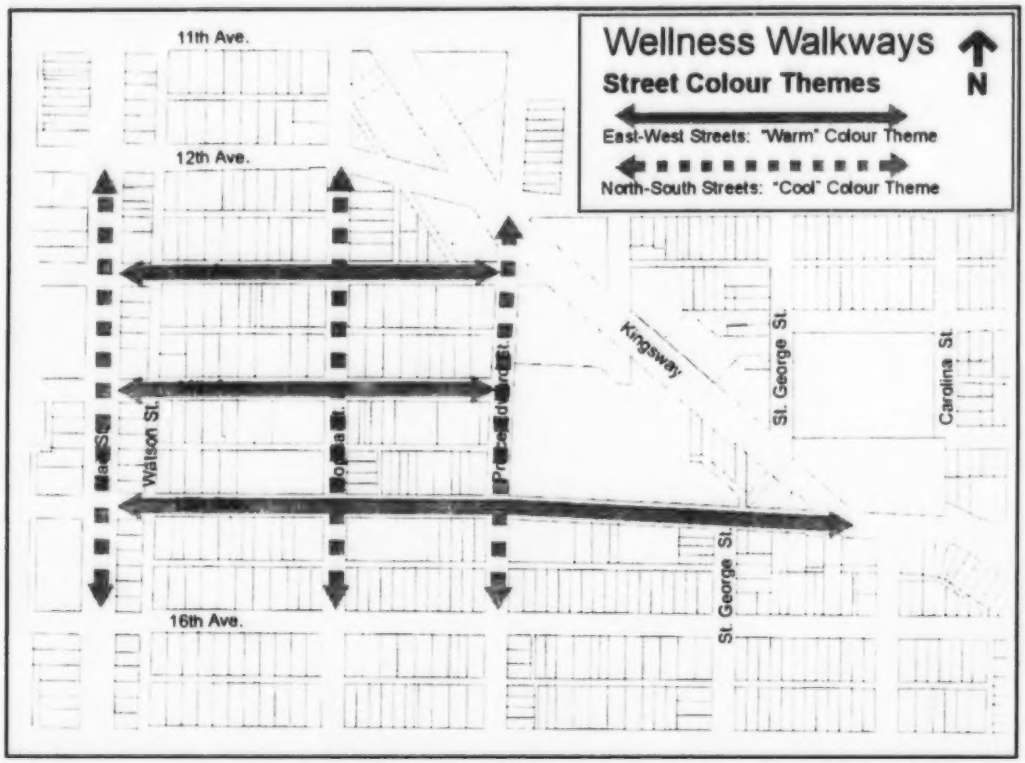


Figure 14: The wayfinding concept for the Wellness Walkways, showing the street colour themes.

The primary wayfinding devices that we have suggested are colour coding and signs. Colour coding can be applied to plant materials, coloured bands on lamp-posts and coloured paving strips along particular streets. Figure 14 shows a proposal for such colour coding on north-south (using "cool" colours) and east-west streets (using "warm" colours).

Hence, Sophia Street has a blue theme (Figures 15 and 16), while 14th Avenue has a red-orange theme, which extends from the flower colour on flowering shrubs and perennials, to the band of coloured pavers along the sidewalk, to coloured bands on signs and lamp posts (Figure 17). This provides a cue for people, so that they are less confused about their direction of travel and their location.

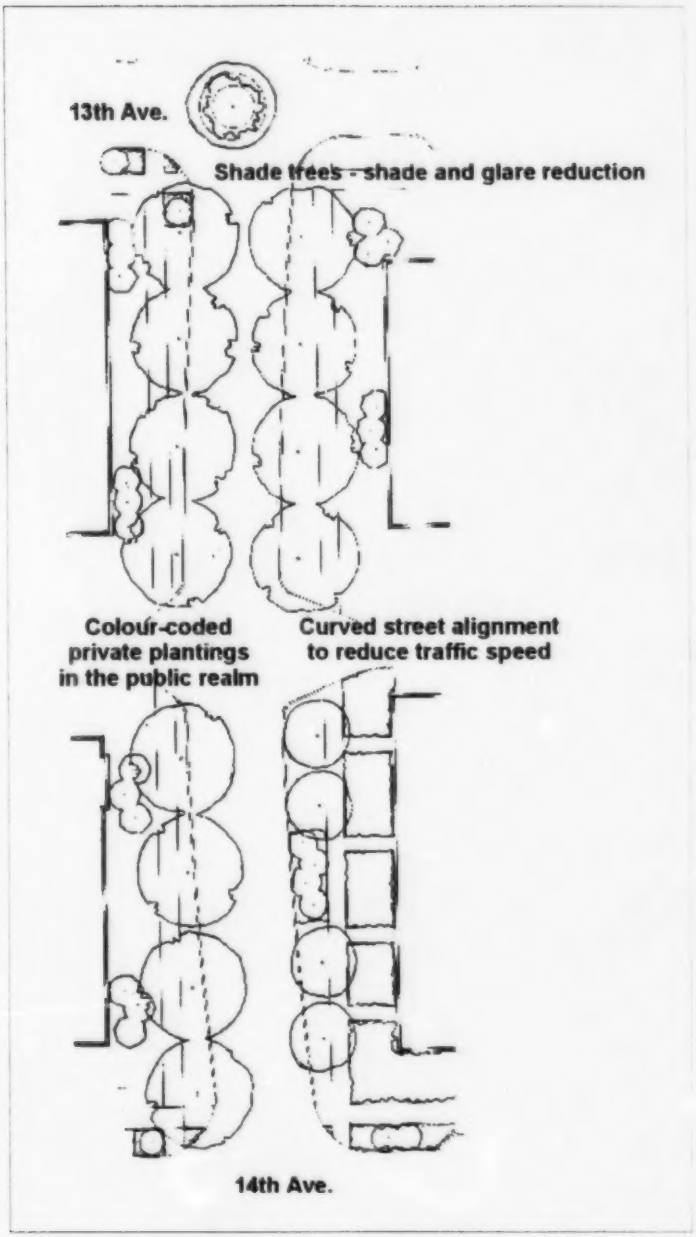

13th Ave.
Shade trees - shade and glare reduction
Colour-coded private plantings in the public realm
Curved street alignment to reduce traffic speed
14th Ave.

Figure 15: Sophia Street wayfinding scheme.

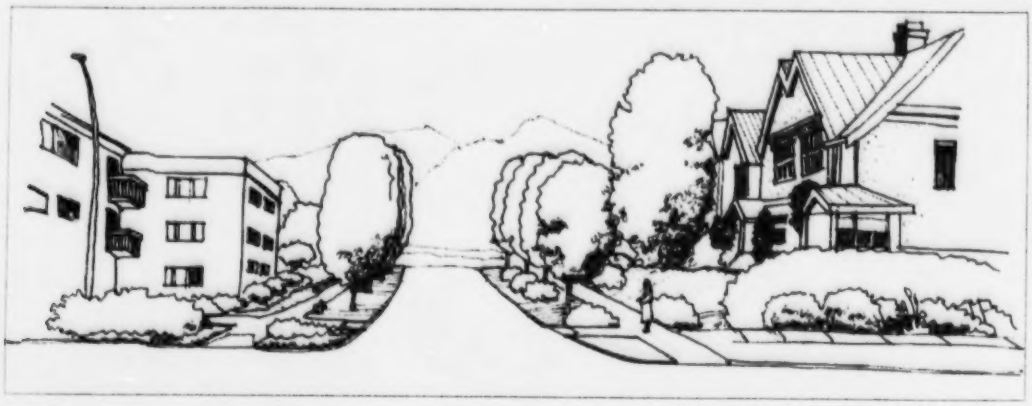


Figure 16: Perspective view of Sophia Street, looking north from 14th Avenue.

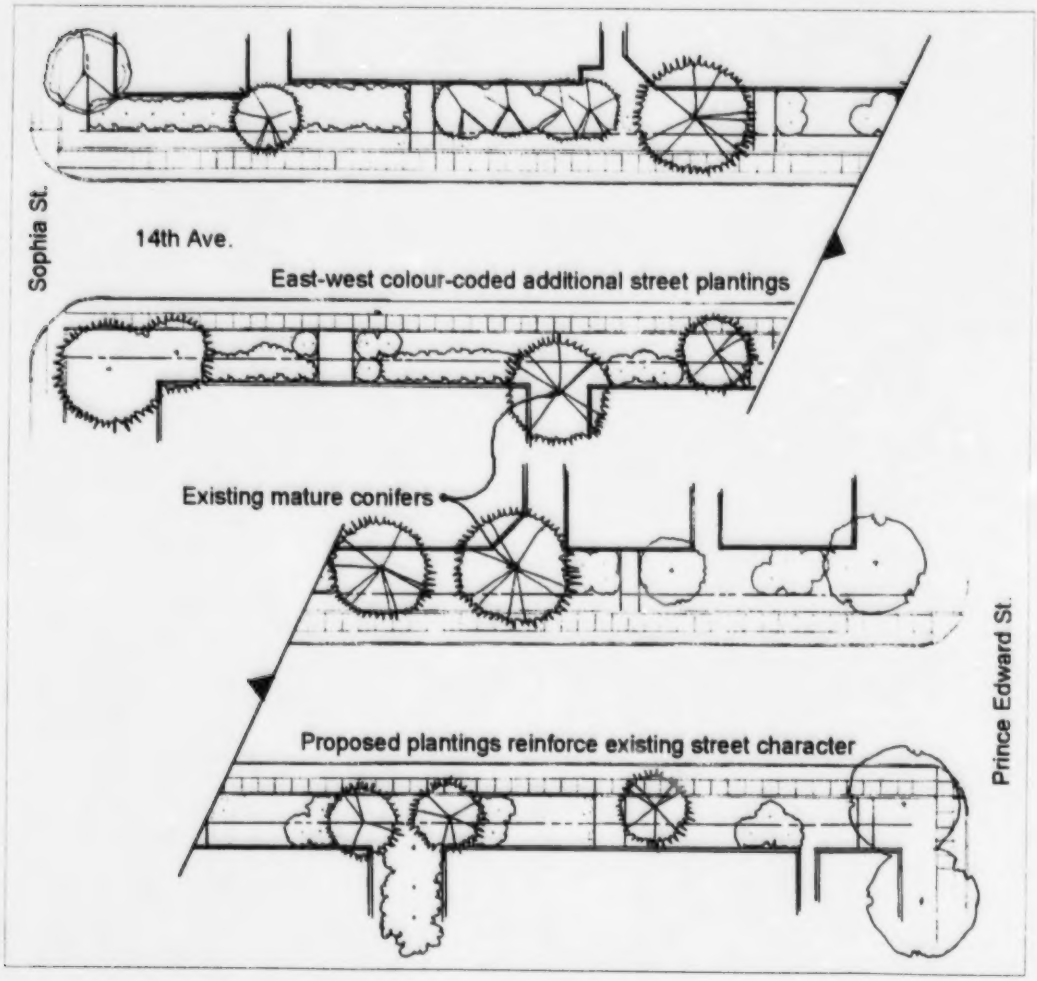


Figure 17: Wayfinding scheme along 14th Avenue, showing the red-orange colour scheme built around the existing landscape along the street.

In addition, easy-to-read signboards are attached to lampposts at key points in the landscape, such as at intersections and rest areas. These signs incorporate reflective bands on the poles for night vision enhancement and have bold, clear lettering and arrows that point the direction to key destinations and landmarks such as the care facilities, shopping areas and parks. Braille panels on some of the posts extend these messages to visually impaired people (Figure 18).

As a secondary wayfinding device, the various distinctively designed rest areas (see Figures 25 and 26) and intersections (see Figures 20 and 21) operate as landmarks along the street. The proliferation of these landmarks has been shown to assist in the creation of legible (that is, easy to understand) environments (Kaplan and Kaplan, 1989; Lynch, 1960).

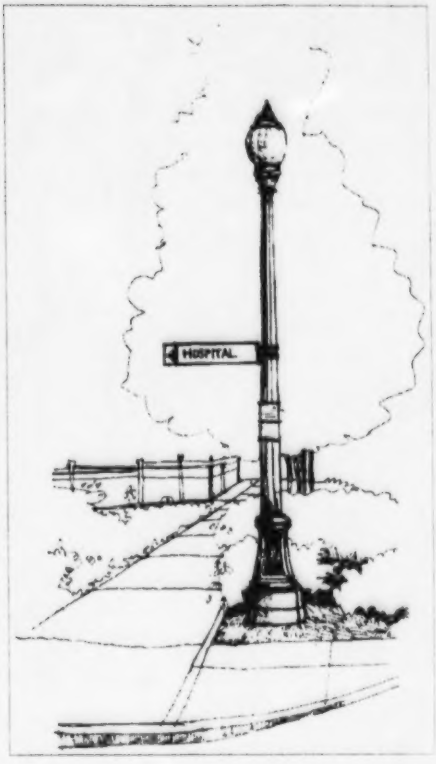


Figure 18: A heritage-style lamppost, with colour-coded reflective band and directional sign.

Summary of Design Ideas

Goal:

Provide local signage and landmarks to assist people in finding their way.

Objectives:

Design the environment in such a way that clues are given, so that it is easier to find one's way around and to remember the way to a given destination.

Support wayfinding by installing signposts at key points in the landscape, such as at intersections and rest areas.

Give signs bold clear lettering and arrows that point the direction to key destinations and landmarks.

Make the lettering black on a white background and place it safely at eye level.

Provide universally-accessible bus shelters with clear signage at bus stops serving the Wellness Walkways.

Posts should have a distinct cross-sectional shape and reflective coloured bands. Signage at bus stops should be at eye level and Braille panels should be used to extend signage messages to visually impaired people.

Use distinctively designed Special Landscape Areas, intersections, rest areas, and heritage interpretation markers to serve as landmarks.

Themes for the Circuits

While the intent of our proposals are that the entire Wellness Walkways network be universally accessible, without precluding any group of people based on physical or cognitive ability, several of the parts of this network have a special emphasis. One of these emphases is on cultural heritage interpretation, another is on provision for visually impaired people, while another is providing for people who have impaired mobility. Figure 19 shows the locations of these "themed" circuits.

The heritage theme involves linking significant heritage locations together into a logical circuit. These heritage locations include the interpretation of the history of the Tea Swamp and the historical course of Brewery Creek through the neighbourhood, the existing Heritage Hall, the former site of the McGeer Dairy at 15th Avenue and St. George Street, and the former site of the Vancouver Tannery (Main Street and 13th Avenue). This theme is expressed through the use of "heritage" style street furniture and unified heritage interpretive markers (following the precedent of the existing Mount Pleasant heritage markers).

The route that most directly addresses visually impaired users connects Edith Cavell Seniors Complex and Mount St. Joseph's Hospital with key destinations on Main Street and with the local parks. The use of scented plantings, emphasis on glare-reduction and shade provision and the use of tactile strips to aid people using canes for navigation are some of the enhancements that mark this theme.

The routes through the neighbourhood that are especially geared towards people with mobility constraints follow the gentlest grades and pass through those intersections that provide the easiest crossings for wheelchairs. These routes are also marked as having priority for new wider and smoother sidewalk surfacing and for the placement of mid-block and intersection rest areas. This themed circuit provides access between the main destinations (parks, shops) in the area and the major healthcare facilities and includes loops of various lengths. This is particularly appropriate for those residents and patients at the hospital who are involved in recreation therapy programs.

Figure 19 shows, that for certain blocks, the three circuit themes overlap. These "combined theme" blocks are enhanced for each of the themes, and include access to universally-accessible bus shelters with Braille lettering on signposts.

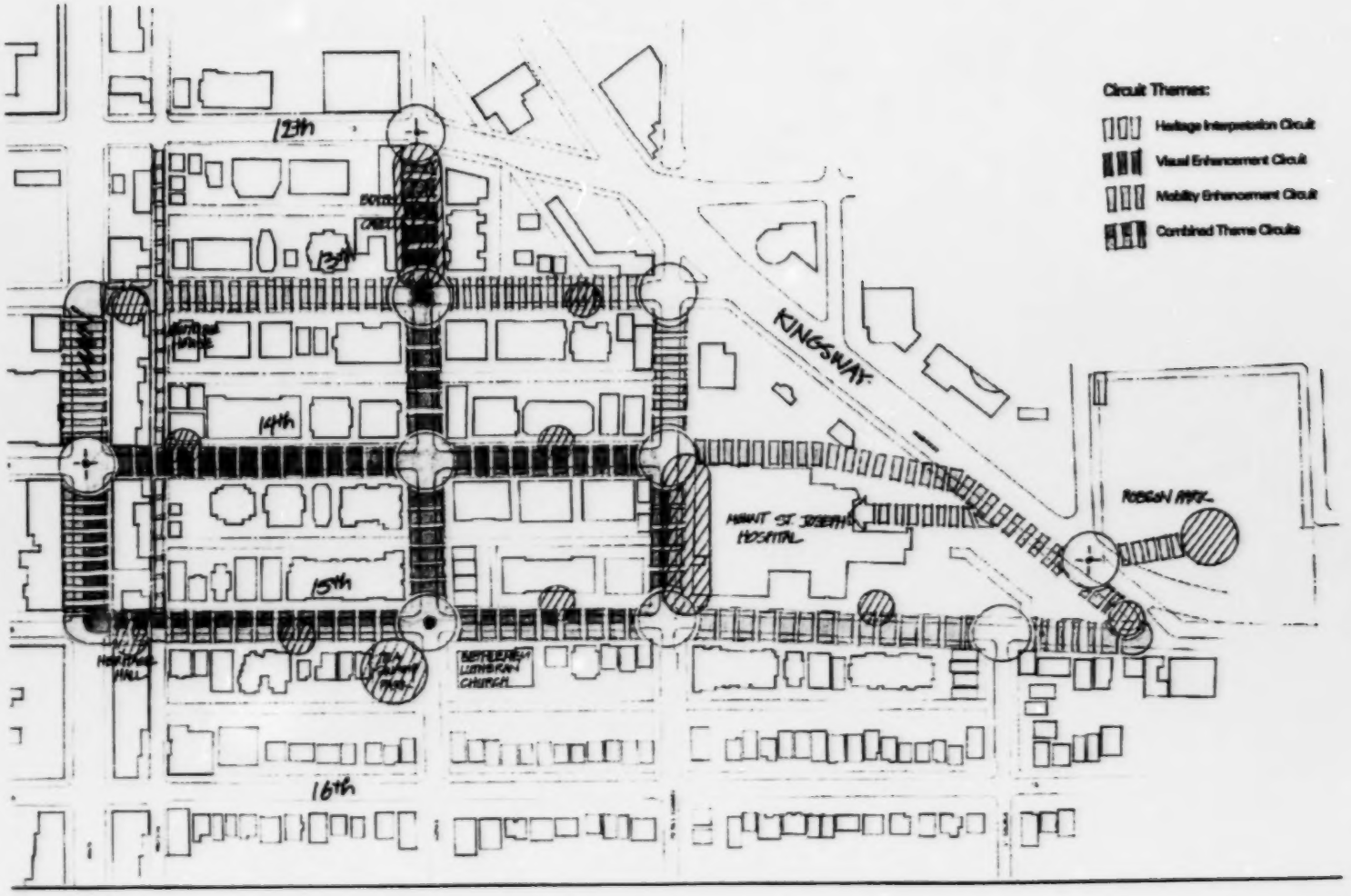


Figure 19: Walkway Circuit Themes

Figure 19: Walkway Circuit Themes

Summary of Design Ideas

Goal:

Support the distinctiveness of the Wellness Walkways and respond to the need of the users in the neighbourhood by providing a heritage themed circuit, a circuit prioritized for the visually impaired and a circuit prioritized for those with mobility constraints.

Objectives:

Use opportunities for heritage interpretation to strengthen wayfinding and establish distinctly different circuits and districts in the neighbourhood.

Link significant heritage locations together to create circuits with heritage themes.

Reinforce heritage circuits through the use of "heritage" style street furniture and unified heritage interpretive markers.

On circuits that are prioritized for the visually impaired:

- ***use scented plantings;***
- ***plant street trees to reduce glare from the sidewalk surface and to provide shade;***
- ***where appropriate, install tactile strips either on both edges of the sidewalk or on the inner edge to aid people using canes to stay on the path;***
- ***continue this tactile strip along sidewalks and across intersections to help the visually impaired navigate. At very least, make sure that crosswalk line markings are repainted frequently and not allowed to become dim through wear;***
- ***to signal the user's arrival at intersections, consider providing markings, contrasting paving or a tactile strip across the top and/or bottom of curb ramps;***
- ***put all street furniture such as benches, drinking fountains and tables off the major circulation and signal their position by either surrounding them with a tactile strip or textured paving.***

On circuits that are prioritized for people with mobility constraints, follow the gentlest grades and pass through those intersections that provide the easiest crossings for wheelchairs.

On circuits that are prioritized for people with mobility constraints, make all new sidewalks universally accessible.

Overlap the themes of circuits to create a hierarchy of circuits.

Major Interventions

The circuits described in the preceding sections are made up of a number of concrete, physical changes in the landscape. These changes, when viewed in sum, make up the Wellness Walkways circuits. We have called these landscape changes "major interventions" - those modifications to the urban environment that are the most significant, the most costly to build and the most apparent to residents and visitors alike. Major interventions can be classified as Intersections, Walkways, Rest Areas and Special Landscape Areas.

Intersections

Intersections are crucial links in the Wellness Walkways circuits, since they are the places where pedestrian, wheelchair, bicycle and automobile traffic come into potential conflict. Intersection design (including crosswalks, curb ramps, corner radii and vehicle lane widths) can have a major influence on universal access through a neighbourhood. Traditionally, intersections have favoured automobile traffic over other modes of transportation. Pedestrians and people in wheelchairs have been made to feel that they were entering a realm dedicated to cars when they entered an intersection. Our design ideas seek to redress that imbalance, by making intersections easier for pedestrians to cross, and by alerting drivers to the notion that intersections are "shared space" between automobiles and other users.

In our Wellness Walkways design ideas, we distinguish between three levels of intersections: Primary, Secondary and Tertiary Intersections (see Figure 11). Primary Intersections are those that are the most crucial links in the construction of the walkway circuits and have priority in terms of being rebuilt. Secondary Intersections are important parts of the circuits, but have a lower priority than Primary ones. Tertiary Intersections are those intersections suggested to receive minor upgrades, since they are less crucial to the functioning of the Wellness Walkways circuits. Besides these three levels of intersections, we have recognized two types of upgraded intersections: Traffic Circle Intersections and Corner Bulge Intersections.

Traffic Circle Intersections introduce a circular, curbed planting area into the centre of an intersection. These traffic circles have become increasingly common in Vancouver and have been shown to be effective in slowing traffic on residential streets and in discouraging "rat running" (non-local traffic cutting through the neighbourhood to avoid traffic signals on arterial streets). But these circles also have benefits for pedestrians, if they are designed correctly. As shown in Figure 20, when crosswalks are pulled back from the intersection, safer crossing of streets in all directions is made possible. The key is to avoid placing pedestrians and wheelchairs into the continuous traffic stream around the traffic circle. Unfortunately, the standard, diagonal curb ramp of the City of Vancouver does just that (see Figure 8). Only by pulling the crosswalks away from the intersection by several metres and by lining up the curb ramps directly with the crosswalks can this problem be avoided (see Figure 9).

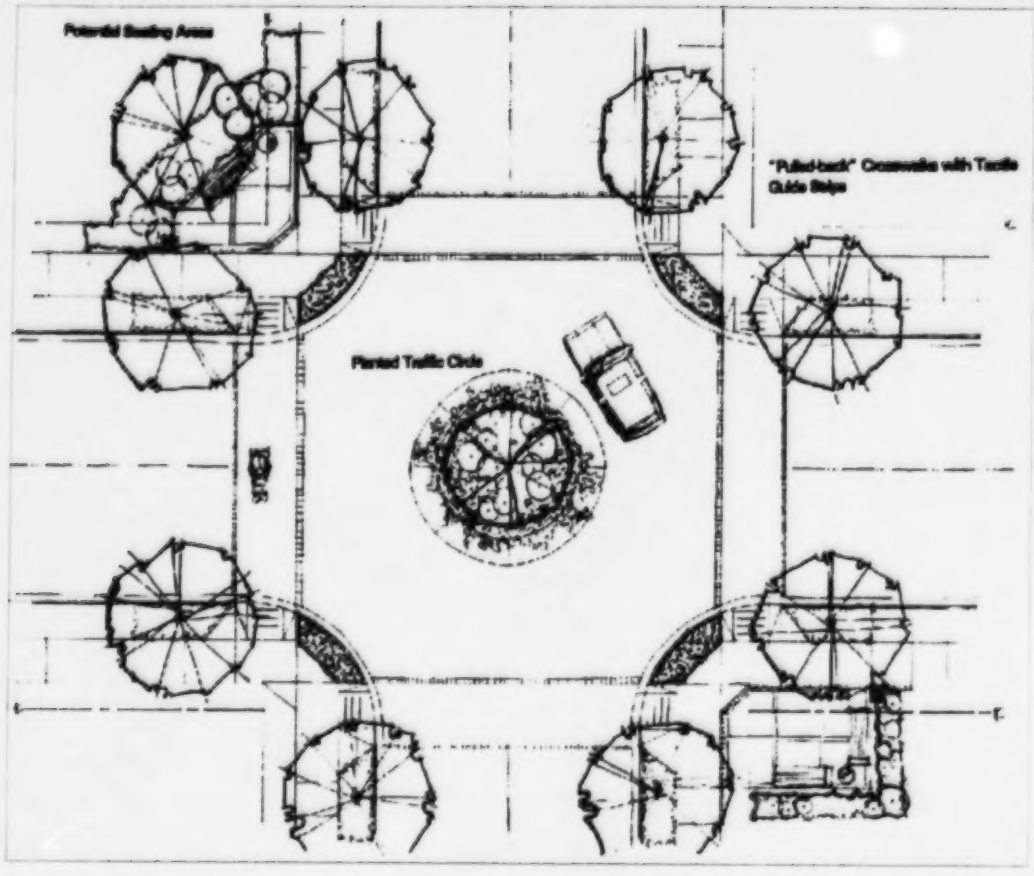


Figure 20: A "traffic circle" intersection, showing the planted, raised circle and the realigned sidewalks that provide greater safety for pedestrians crossing the intersection. The outer curbs are mountable by emergency vehicles, while limiting the speed of vehicles.

Corner Bulge Intersections are formed by "bulging" the curb into the traffic on either two or all four of the roadways entering the intersection, for a distance of 6 metres. Figure 21 shows an example of this intersection type. The bennefits of corner bulges for enhancing universal access include a narrower roadway (7 metres instead of the typical 11 metres). This allows pedestrians and people in wheelchairs to cross the street more quickly, and reduces the perception that the roadway is a major barrier to movement. In addition, narrower roadways, at intersections, result in slower traffic, that further enhances safety. The boulevard strip between the sidewalk and the curb face is wider at corner bulges, allowing opportunities for planting and for the creation of seating places, thus enhancing the comfort and attractiveness of the public streetscape.

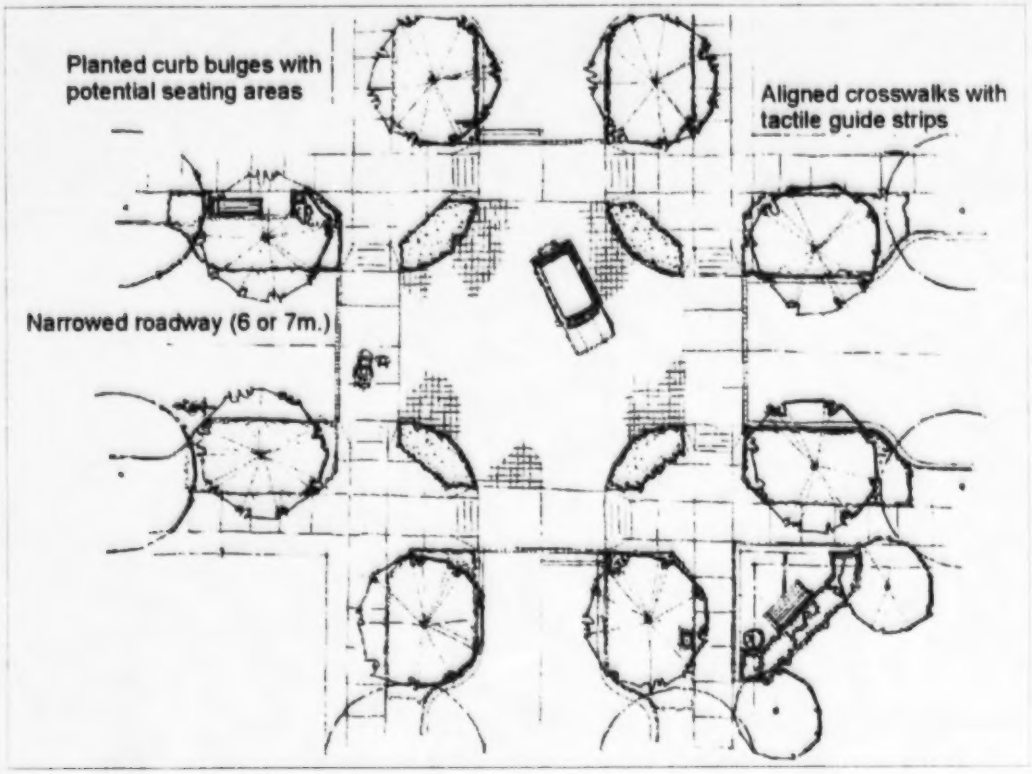

Planted curb bulges with potential seating areas
Aligned crosswalks with tactile guide strips
Narrowed roadway (6 or 7m.)

Figure 21: A "corner bulge intersection", showing the narrow traffic lanes, planted area with seating and textured paving in the intersection.

Summary of Design Ideas

Goals:

Redesign the neighbourhood to remove the fear of traffic so that people will use the Wellness Walkways. Do this by protecting people from vehicular traffic and giving them a greater sense of security when crossing vehicular traffic.

Objectives:

Use curved street alignments and narrowed traffic lanes on busy local streets.
Replace all diagonal curb ramps with perpendicular curb ramps.
Make sure that there are pedestrian/cyclist-actuated traffic signals to connect the Wellness Walkways across busy streets.

Consider the use of new technologies, especially at the Kingsway pedestrian-actuated crosswalk, to ensure that the elderly and those in wheelchairs have sufficient time to cross the road.
Provide corner bulges to create a narrower roadway at intersections, making these intersections safer to cross for slow moving people.
Locate the Wellness Walkways circuits in areas of lowest crime.
Provide ample well-directed lighting at intersections.

Goals:

Make intersections easier for pedestrians to cross, and alert drivers that intersections are "shared space" between automobiles and other users.
Provide three levels of intersections: Primary Intersections are those that are the most crucial links in the construction of the walkway circuits and have priority in terms of being rebuilt; Secondary intersections are important parts of the circuits, but have a lower priority than Primary ones; Tertiary Intersections are those intersections that are to receive minor upgrades, since they are less crucial to the functioning of the Wellness Walkways circuits.
Besides these three levels of intersections, provide two types of upgraded intersections: those having Traffic Circles and those with Corner Bulges.

Objectives:

Provide Traffic Circle Intersections where appropriate to discourage non-local traffic cutting through the neighbourhood to avoid traffic signals on arterial streets.
Pull crosswalks away from the intersection by several metres.
Align the curb ramps directly with the crosswalks from traffic circle intersections so that safer crossing of streets in all directions is made possible.
Provide corner bulge intersections to create a narrower (6 - 7 metres instead of the typical 11 metres) roadway at intersections. This allows pedestrians and people in wheelchairs to cross the street more quickly and reduces the perception that the roadway is a major barrier to movement.
Use the wider boulevard strip between the sidewalk and the curb face that is created by the corner bulges for additional plantings and for the creation of seating places, thus enhancing the comfort and attractiveness of the public streetscape.

Walkways

Sidewalks along the streets are the primary routes along which the Wellness Walkways circuits are based. Our design ideas for enhancing sidewalks address both the width of the sidewalks and their surfacing. Sidewalks of at least 1.8 metres in unobstructed width allow two wheelchairs to ride abreast, making it possible for their occupants to socialize en route and allowing wheelchairs to pass one another easily. The common sidewalk width of 1.5 metres does not allow these simple but important things to happen. Many elderly people and people with disabilities are very sensitive to surface bumps and ridges in sidewalk surfaces; a smooth surface is critical to their comfort, to the extent that a bumpy sidewalk will prevent use by certain groups of people. We suggest that new sidewalks be constructed using sawcut joints in the pavement (for control of cracking), rather than the traditional trowelled joints. A well-compacted and well-drained gravel and sand base below the sidewalk is also crucial, to ensure that winter freezing and thawing does not heave the sidewalk surface, as is adequate root zone preparation and careful species selection to reduce heaving by tree roots. Any bump of 5 mm or more can create discomfort for some

people in wheelchairs (Terry, 1993), such as the population of patients in care facilities like Mount St. Joseph's Hospital.

People whose vision is impaired will benefit from "cues" in the environment which assist them in knowing where they are in relation to hazards or amenities. We suggest that many of the Walkways include a "tactile strip" - that is a rough-textured strip of pavement - along the sides of sidewalks. People who use a cane to assist themselves can use these strips as an indication of the Wellness Walkways circuit. Special tactile strips can also alert and direct visually impaired people to the presence of benches and rest areas, and to intersections and bus stop locations (Figure 22). Colour-coding these tactile strips according to the various Wellness Walkway circuits will also assist people in finding their way through the neighbourhood.

Figure 22: A detail showing a tactile paving strip along a concrete sidewalk.

Main Street between 13th and 16th Avenues presents special challenges for the construction of the Wellness Walkways. There is less opportunity to enhance the sidewalks here with planting strips and resting places, due to the busy nature of the commercial street front. Also, it is unlikely that this sidewalk will be completely replaced in the foreseeable future. One possibility is to create a smooth surface on this important sidewalk with a thin coating (10 mm) of asphalt paving over the existing concrete. A smooth travel path in the centre of the sidewalk can be distinguished from textured paving around street trees (to allow water penetration into the soil around the trees) and along the building face (to create a zone for sidewalk stalls, outdoor seating etc.). This design idea is shown in the perspective sketch (Figure 3). Main Street is an appropriate location of a specially designed bus shelter that is truly universally accessible - for visually impaired people as well as those in wheelchairs (Figure 28, based on a design by Janice Runyan, 1998).

Summary of Design Ideas

Goal:

Design paving to support universal accessibility.

Objectives:

Where appropriate, install tactile strips at the edges of paving to aid the visually impaired in wayfinding.

To signal the user's arrival at intersections, consider providing markings, constrasting paving or a tactile strip across the top and/or bottom of curb ramps.

Make sure that the texture of the tactile strips results from recesses rather than a raised surface so they are not disruptive to those in wheelchairs.

Make curb ramps flush with the street at the base.

Make the base of these ramps well-drained to avoid puddles.

Provide ample room for movement, recognizing that our users include those in wheelchairs and walkers. New sidewalks should be at least 1.8 metres wide.

In any future improvements in the study area, strive to make cross slopes 1.5% on sidewalks and 0% on curb ramps.

To provide a smooth sidewalk surface, any cracked, heaved or settled sidewalk paving should be replaced where possible with new sidewalks.
Control joints in new sidewalks should be sawcut rather than trowelled in order to improve evenness and smoothness for use by wheelchairs and walkers.
Ensure adequate root zone preparation and carefully select trees to reduce sidewalk heaving by tree roots.

Main Street

Goal:

Visually unify the street, while retaining its lively and eclectic atmosphere through the use of a distinctive and unifying paving.

Objectives:

Unique sidewalk designs should be considered for beautification areas.
Consideration should be given to creating a smooth surface on the sidewalk along Main Street with a thin coating (e.g. 10 mm) of coloured asphalt paving over the existing concrete.
A smooth travel path in the centre of the sidewalk should be distinguished from textured paving around street trees (to allow water penetration into the soil around the trees) and along the building face (to create a zone for sidewalk stalls, outdoor seating, etc.).
Consider a trial design for a universally-accessible bus stop - for visually impaired people as well as those in wheelchairs - on Main Street between 13th and 15th Avenues.

Rest Areas

Stakeholders whom we consulted spoke of the desirability of creating mid-block resting spots. This information supported the research of Gehl (1996) and the guidelines suggested by Cullen (1961). Many elderly and disabled people desire and need places to rest along their walk at regular intervals. Benches placed at intersections and midway along the long east-west blocks are proposed to address this need, while also creating attractive and safe places for all residents to enjoy being on the street (Jacobs, 1961; Cooper-Markus and Francis, 1993).

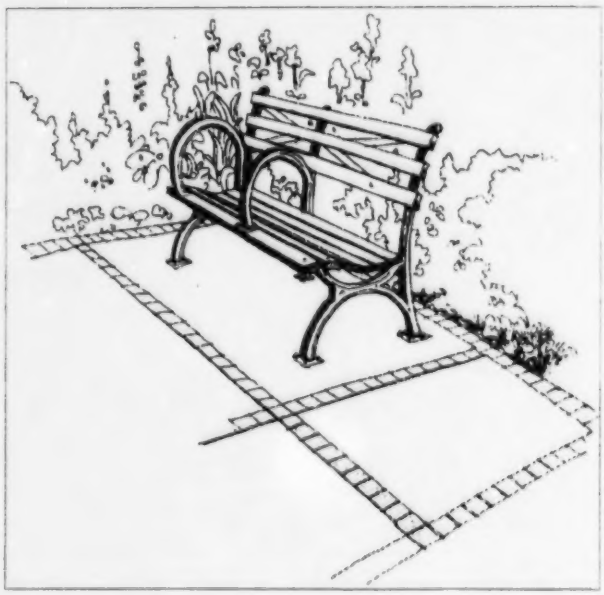


Figure 23: Bench with wheelchair pad, one open side and support bar.

A number of possible designs for such rest areas, combining simple benches with other amenities to create comfortable, universally-accessible and attractive places are suggested. Each of these rest areas includes a 1-metre wide paving pad on at least one side of

benches, so that people in wheelchairs can sit alongside the benches, transfer onto the bench or join more easily in conversation (see Figure 23, for example).

Each rest area should be well lit, with heritage style pedestrian-scaled light standards. Rest areas may include perennials and flowering shrubs and trees providing shade, aromas, opportunity to see birds and butterflies and shelter. Some rest areas may include nesting boxes for birds or even bats, raised planting beds (which allow people in wheelchairs to participate in planting and watering of flowers) and/or universally-accessible drinking fountains (see Figure 24). Other rest areas may include shade structures, which may support vines and climbing plants as well.

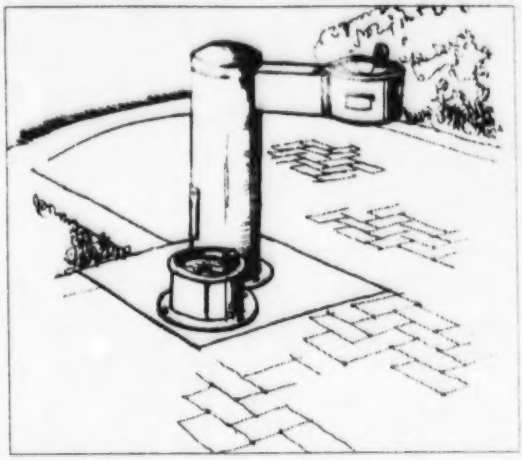


Figure 24: Universally accessible drinking fountain

Our sketches show some possible locations for these rest areas, and include the possibility that some of these rest areas may be designed for particular themes. For example, Figure 25 shows a mid-block rest area designed in conjunction with an entrance to an apartment building. This area may serve people walking along the sidewalk as well as residents of the apartment dwelling. Figure 26 shows a rest area with a heritage interpretation theme: the expression of Brewery Creek, which once ran through this neighbourhood. The creek is expressed in a mosaic tile, with interpretive panels, stone seats and "stream side" plantings completing the picture. Even street furniture (like the garbage receptacle shown in Figure 27) can reflect local history and character.

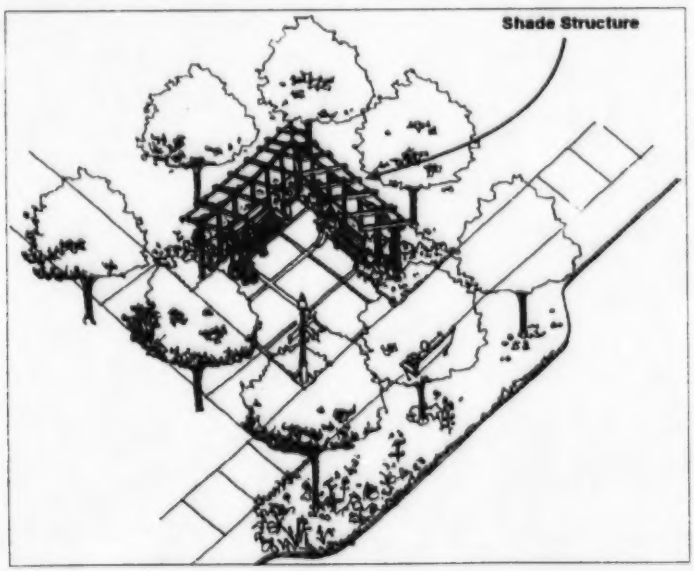


Figure 25: A schematic design for a rest area in conjunction with an apartment building entrance.

Many other possibilities exist for creating memorable and distinctive rest areas, with the potential benefit of safer streets, more universal access for all the neighbourhood residents, and a healthy, attractive streetscape.

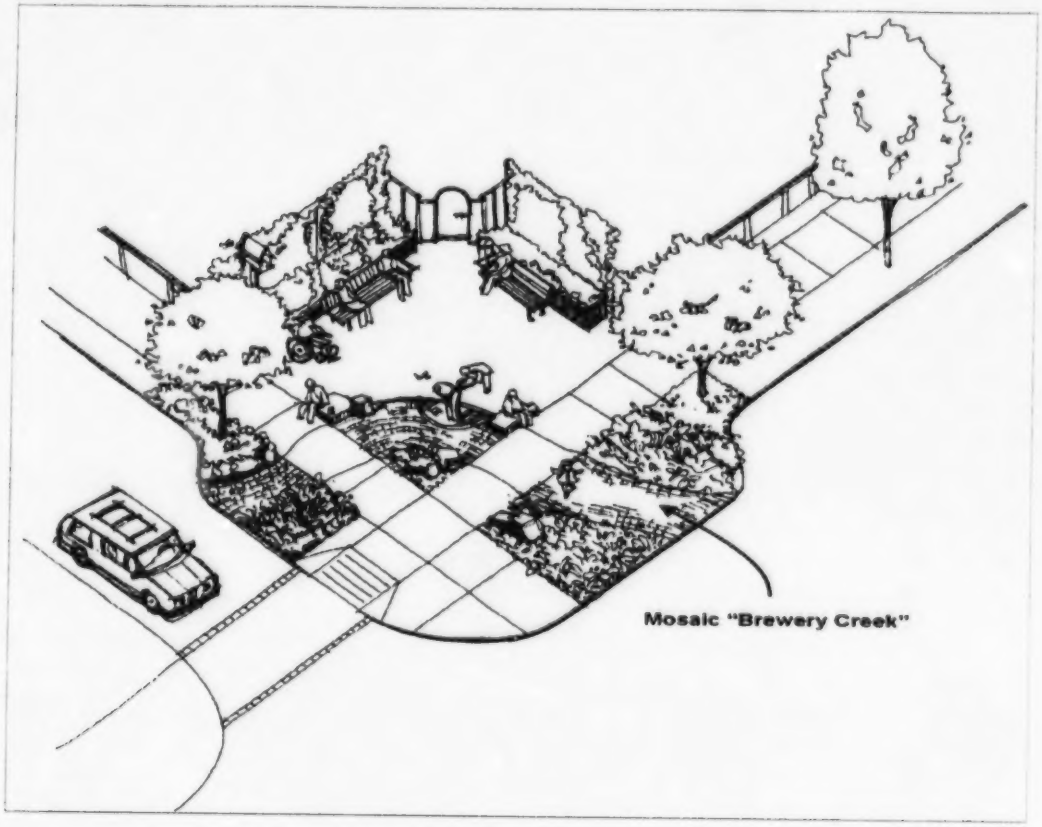


Figure 26: A schematic design for a rest area with a Brewery Creek heritage interpretation theme.

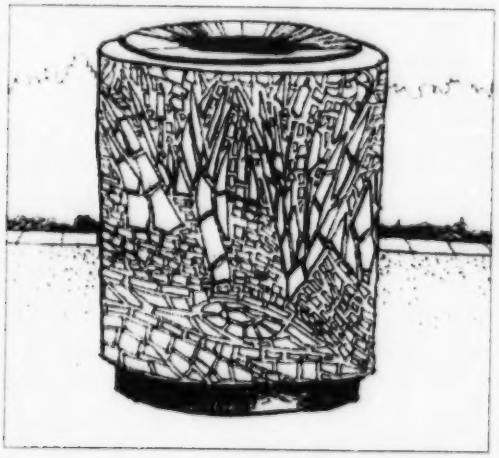


Figure 27: A garbage receptacle in mosaic tile, representing the historical Brewery Creek.

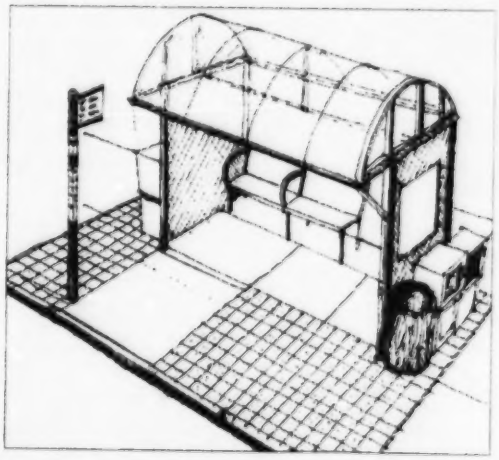


Figure 28: Universally-accessible bus shelter (Janice Runyan).

Summary of Design Ideas

Goal:

Provide a number of rest areas throughout the neighbourhood to stimulate social life on the street, facilitate use, and promote universal design and wayfinding.

Objectives:

Place rest areas at mid-block locations and at intersections.
Create rest areas which combine simple benches with other amenities to create comfortable, universally-accessible and attractive places.
At each bench, include a 1-metre square paving pad on at least one end, so that people in wheelchairs can sit alongside the benches and join more easily in conversation, or transfer onto the bench.
Ensure that rest areas are well lit, with heritage style pedestrian-scaled light standards.
Vary seating arrangements to provide choices and social opportunity in rest areas. Provide rest areas along the busiest pedestrian routes and wherever people tend to congregate.

Goal:

Make rest areas appealing to the widest range of users.

Objectives:

Give rest areas different and appropriate themes such as heritage.
Give different rest areas:

- ***microclimatic shelter in the form of shade structures, which may support vines and climbing plants as well, or shelters from the rain;***
- ***perennials, flowering shrub and tree plantings for aroma or to enhance the viewing of birds or butterflies;***
- ***nesting boxes for birds and bat boxes; and,***
- ***universally-accessible raised planting beds and drinking fountains.***

Special Landscape Areas

There are several areas within the study neighbourhood that are particularly important for the completion of an integrated set of Wellness Walkways circuits. These include the two parks within and adjacent to the neighbourhood (Tea Swamp Park and Robson Park) as well as the front entrance areas of the two main healthcare facilities (Mount St. Joseph's Hospital and the Edith Cavell Seniors Complex). We have treated these places as Special Landscape Areas (see Figure13 for their locations).

Tea Swamp Park is a key destination within the neighbourhood. This passive park and the small children's playground in it are enjoyed by a diverse set of people. Our design ideas are not to radically change this park, but to enhance its appeal and extend its accessibility and use through some careful additions and changes. These changes are shown on Figures 29 and 30, and include:

- a revised entrance, with additional seating and more direct access into the park;
- additional plantings of aromatic and other shrubs which attract hummingbirds and butterflies, close to where people may sit;
- nesting boxes and bird feeders and bat boxes on poles to attract various birds (wrens and tree swallows, for example) and bats to the park;

- a shade structure over the existing seating area, making it more attractive to sit;
- extended concrete pads beside benches to allow wheelchair users to sit next to those on benches or to transfer onto a bench;
- a universally-accessible table (Figure 31) on a new paved area; and
- screening plantings to promote the privacy of neighbours to the park.

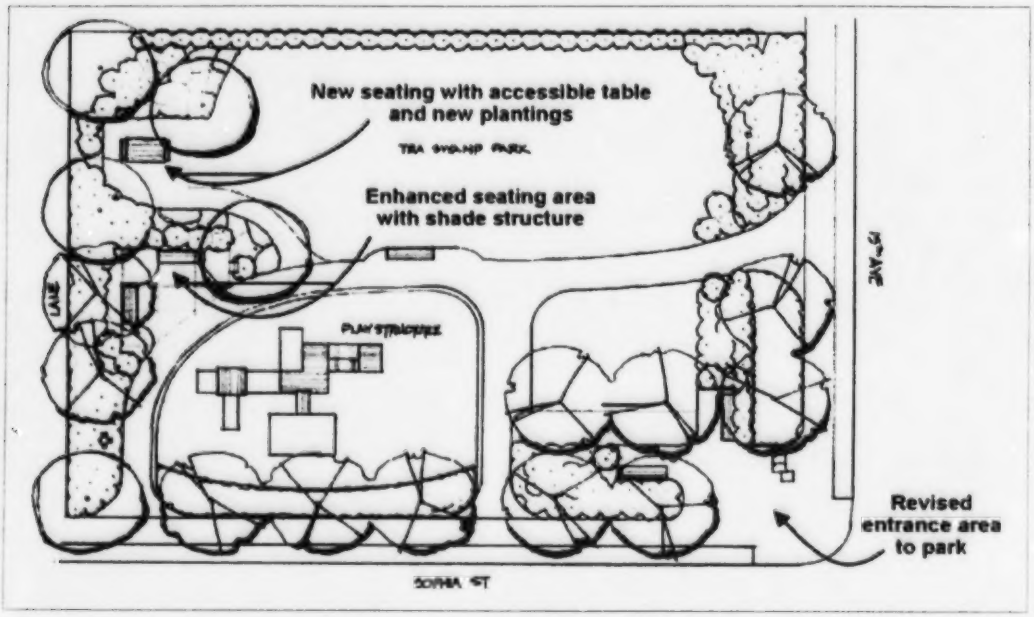

New seating with accessible table and new plantings
Enhanced seating area with shade structure
Revised entrance area to park

Figure 29: Plan for the redesign of Tea Swamp Park.

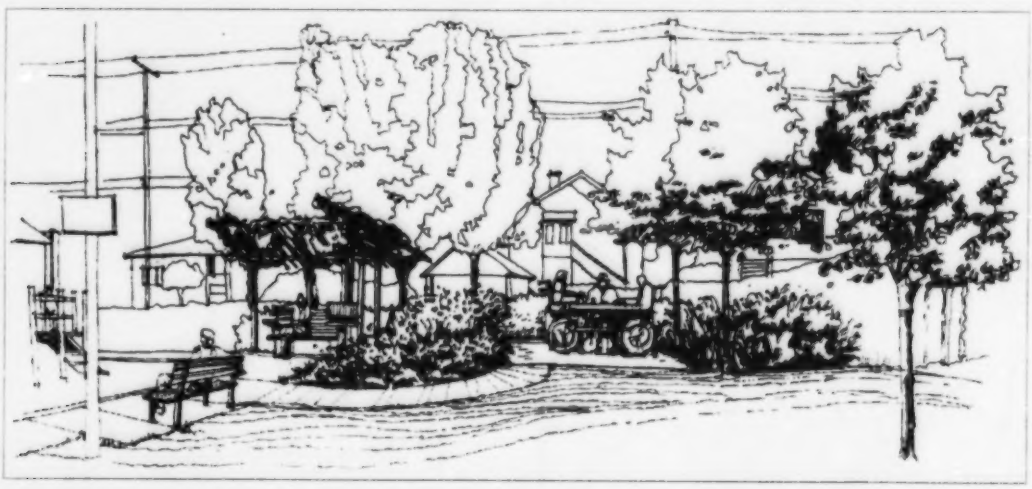
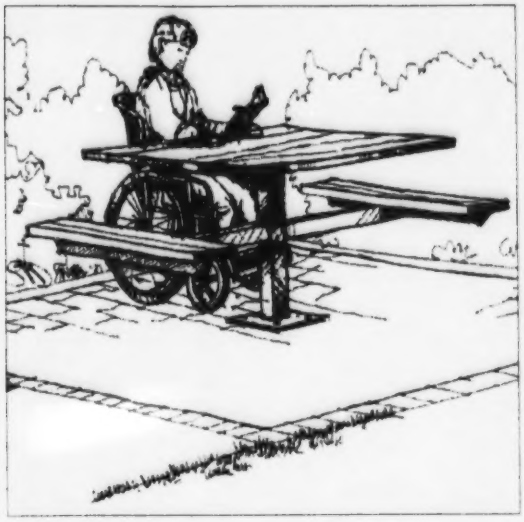


Figure 30: Perspective view of the proposed seating area and plantings in Tea Swamp Park.



Robson Park, which is currently difficult to reach due to its location across Kingsway from the neighbourhood, is a large and attractive destination. Our suggestion to enhance access to this park by extending the crossing time on the pedestrian-operated traffic signal was recently acted upon by the City's Engineering Department, while we are also suggesting additional curb ramps on the north-east side of Kingsway. Within the park, we would suggest some minor additions to paved areas around the chess board, an additional bench to take advantage of the views to the mountains and raised planting beds in the community garden (Figure 32).

Figure 31: Accessible picnic table, proposed in Tea Swamp Park and in Robson Park.

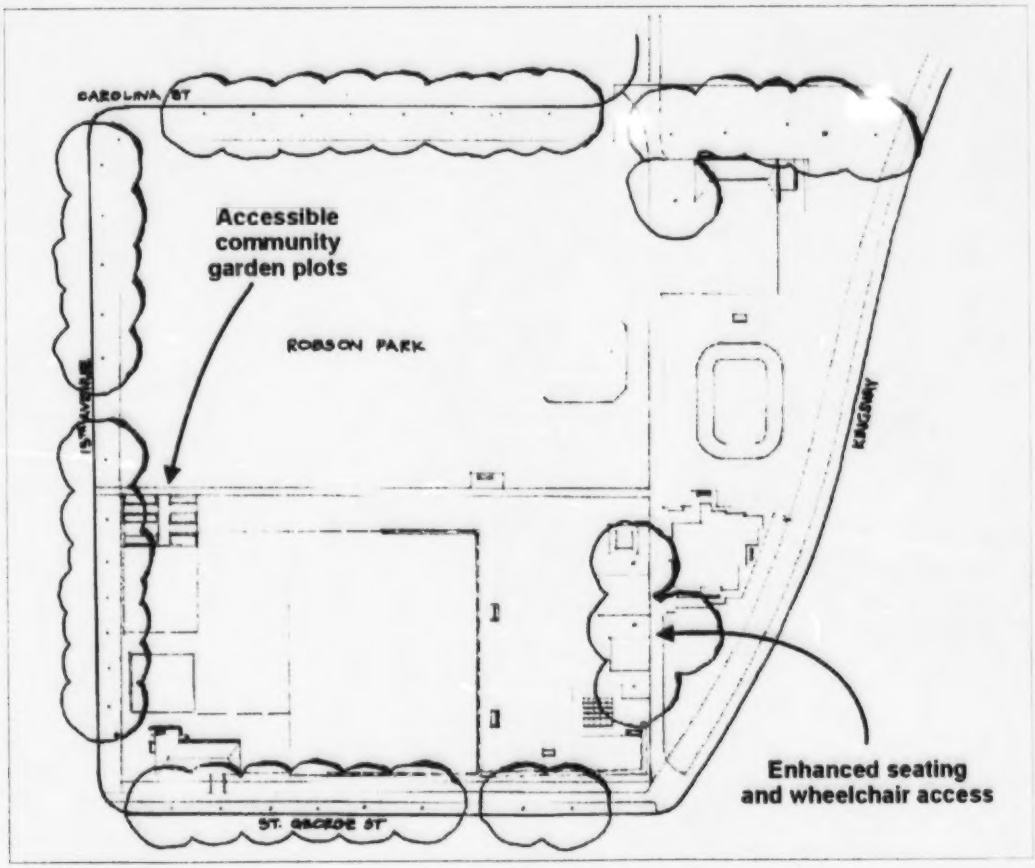
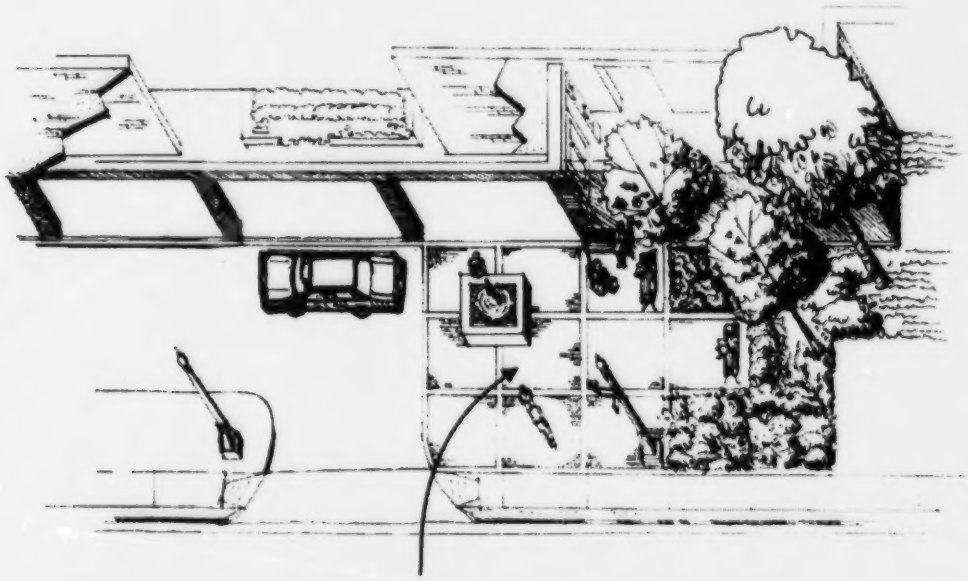


Figure 32: Plan for proposed additions to Robson Park.

The Prince Edward Street entrance area in front of Mount St. Joseph's has the potential to be a wonderful, sunny place for visitors, staff, patients and residents to sit (Figure 33). In fact, even now people sit there, although the seating areas are in a cramped and confined condition. Our design ideas here include enhanced planting and lighting around a brick-paved plaza. Benches (with adjacent pads for wheelchairs) are arranged for views of the entrance and for conversation. A small fountain adds interest and liveliness, intended to draw people outdoors from inside the hospital. The location of the benches, as well as the height and position of plantings around the seating areas have been designed to maximize safety, according to principles of CPTED (Crime Prevention through Environmental Design - see City of Toronto, 1993). Adjustments in the configuration of the drop-off zone allow these changes to happen without impeding automobile access to the hospital entrance or parking lot.



New paved seating plaza with fountain, enhanced lighting and plantings

Figure 33: An Axonometric view of a proposal to enliven the entrance area of Mount St. Joseph's Hospital, including a small fountain, seating areas in the sun and special paving.

Finally, the fourth Special Landscape Area is the front entrance area of the proposed and expanded Edith Cavell Seniors Complex (Figure 34). Like the hospital entrance, the design idea here is to "blur" the distinction between the public street and the private entrance plaza. This was done to respond to social design principles (Hall, 1966; Cooper-Markus and Francis, 1993; Gehl, 1996) that seek to enhance the degree of social interaction and the sense of safety that people experience in their neighbourhood. Additional paving (brick panels with concrete banding) is extended up to the street, while additional seats and plantings create an attractive, safe and lively place for residents and visitors to sit outdoors and participate in the life on the street. A narrowed Sophia Street allows this proposal to be accomplished.

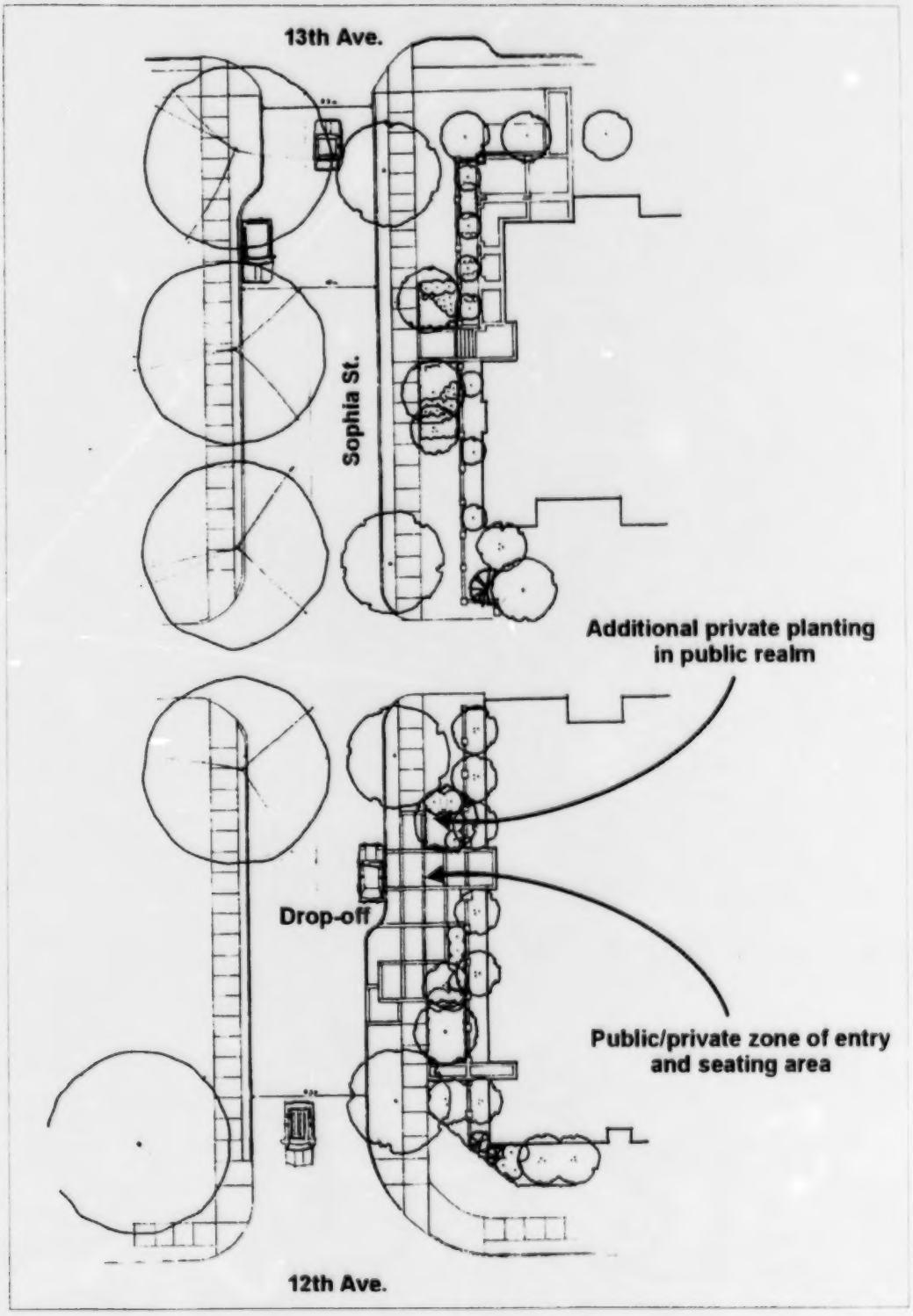


Figure 34: A plan for a proposal to revise the entrance to the Edith Cavell Seniors Complex, including seating areas, planting and special paving.

Summary of Design Ideas

Tea Swamp Park

Goal:

Upgrade Tea Swamp Park to meet the needs of the neighbourhood stakeholders.

Objectives:

Provide some seats grouped around a table or sitting areas that look onto activity or "landscape conversation pieces" to promote socialization.

Provide sitting spots at the edge of open spaces, that protect the sitter's back, give unobstructed views and provide protection from the elements.

Revise the park entrance area, with additional seating and easier more direct access into the park.

Provide additional aromatic plantings and other shrubs which attract hummingbirds and butterflies, and which are positioned so that they are close to where people may sit.

Provide nesting boxes and bird feeders on poles to attract various birds to the park.

Provide a shade structure over the existing seating area, to make it a more comfortable place to sit.

Add extended concrete pads beside benches to allow wheelchair users to sit next to people on the benches.

Provide a universally-accessible table on a new paved area.

Plant more screen plantings to promote the privacy of neighbours to the park.

Robson Park

Goal:

Enhance access to Robson Park.

Objectives:

Consider the use of new technologies at the Kingsway pedestrian-actuated crosswalk, to ensure that the elderly and those in wheelchairs have sufficient time to cross the road.

Provide additional curb ramps on the north-east corner of the Kingsway pedestrian-actuated crossing to Robson Park.

Goal:

Enhance Robson Park to meet the needs of the mobility-restricted user.

Objectives:

Make small additions to paved areas around the chessboard for wheelchair users.

Provide an additional bench to take advantage of the views to the mountains.

Provide raised planting beds in the community garden.

Mount St. Joseph's Hospital

Goal:

Provide a Special Landscape Area in front of Mount St. Joseph's Hospital by providing a new plaza extending to Prince Edward Street.

Objectives:

Incorporate into the plaza design:

- ***new brick pavers in a grid of concrete bands;***
- ***a small fountain to serve as a focal point and add interest and liveliness;***
- ***benches, arranged for views of the entrance and for conversation and that incorporate adjacent wheelchair pads; and,***
- ***enhanced planting and lighting using CPTED principles.***

Edith Cavell Seniors Complex

Goal:

Provide a Special Landscape Area in front of Edith Cavell Seniors Complex by providing a plaza extending to Sophia Street.

Objectives:

Incorporate additional paving (brick panels with concrete banding) extended up to the street.

Provide additional seats and plantings to create an attractive, safe and lively place for residents and visitors to sit outdoors and participate in the life on the street.

Realize this proposal simultaneously with the narrowing of Sophia Street for traffic calming.

Provide additional plantings and lighting, using CPTED principles to maintain open views.

V. Prologue

The City of Vancouver, Wellness Walkways Study

This report was commissioned by the City of Vancouver Planning and Engineering Departments. Its purpose was to identify design solutions which could be applied on public open space, or adjacent private properties, to accommodate use by all people living, working and visiting in the area.

Design Process and Use of Research

The consultants conducted an inventory of the physical condition of the study area. Consultation with the public, healthcare facilities and interest groups also occurred throughout the study. These groups have confirmed their support for a more beautiful, restorative and universally-accessible environment with a stronger sense of place. This process of developing the Wellness Walkways Report was supported by a review of research literature in the subjects of the environmental psychology, social design theory, public safety and universal design. This information was synthesized to develop prototypical walkway circuits and design ideas.

Future Research

The City will now implement the project (subject to City policy, maintenance, funding, etc.), encouraging investment from the business community and private citizens in a process that will transform the neighbourhood. We have suggested that, once the Wellness Walkways is in place, a Post-Occupancy Evaluation (POE) should be conducted to demonstrate the benefits of these changes to the community. This would validate much of the research we used in designing the Wellness Walkways and reveal new questions for further research.

Project Legacy

The study design ideas are not a "master plan". Rather, they are a set of prototypical design ideas showing how the public realm could be changed incrementally, to more fully meet community needs. The Wellness Walkways Report is a pre-design study for a particular type of public realm development - one that serves the public by providing respite and restoration while serving the people in the neighbourhood with special needs. As society ages, our attempt to provide universal access and amenity to the urban landscape will become increasingly relevant. We view this project as a prototype for the common urban landscape of the not too distant future.

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